United States Antarctic Program Participant Guide

2004 - 2006 Edition



National Science Foundation • 4201 Wilson Boulevard • Arlington, Virginia 22230

www.nsf.gov

A QUICK GUIDE TO COMMON QUESTIONS

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United States Antarctic Program

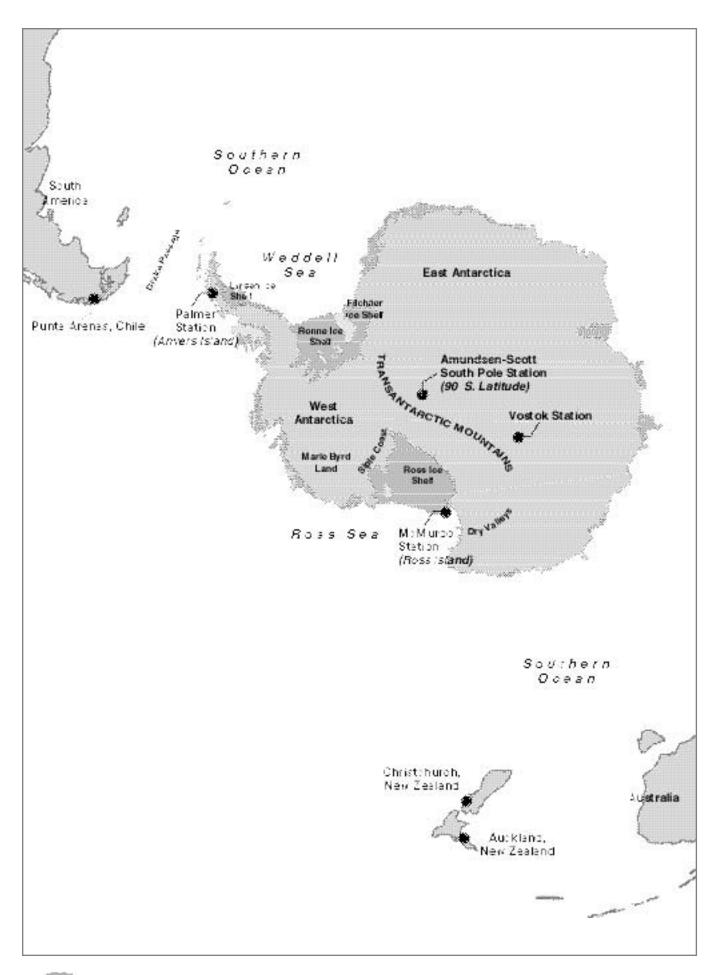
Participant Guide

2004-2006 Edition

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NATIONAL SCIENCE FOUNDATION 4201 WILSON BOULEVARD ARLINGTON, VIRGINIA 22230



Welcome...

NATIONAL SCIENCE FOUNDATION 4201 WILSON BOULEVARD ARLINGTON, VIRGINIA 22230

Welcome to the United States Antarctic Program. As a participant in this national effort to learn more about Antarctica and the Southern Ocean, you are one of some 3,000 people who deploy each year to ships, stations, and field camps to perform or support

In addition to helping you in your personal and professional objectives, this manual describes your legal responsibilities resulting research projects. from participation in the Antarctic Program. These responsibilities include actions required of you to assure the Nation's compliance with the Antarctic Treaty, in particular provisions for protecting the environment, and to help you comply with U.S. public law and program procedures. There may be substantial civil or criminal

Safety, environment, and health are of paramount importance. penalties for noncompliance. Continued vigilance and action in these areas are essential to maintain the strict standards of work in Antarctica.

This U.S. Antarctic Program Participant Guide is revised every 2 years. If you know of ways to improve it, please send suggestions

to us using the evaluation card at the back of this book.

Scott Borg, Head Antarctic Sciences Section Office of Polar Programs

Erick Chiang, Head Polar Research Support Section Office of Polar Programs



This Participant Guide is your initial source of information for United States Antarctic Program participants. It covers McMurdo, Palmer and South Pole Stations, field camps and the research vessels. The information will help you prepare for your antarctic experience and point you toward other sources. Be sure to work closely with your **point-of-contact** for more detailed information and the particular requirements related to your objectives.



Icons are used throughout this handbook. The **Information** icon directs you toward other publications and sources of related information. The Grantee (scientist) and RPSC Employee icons indicate information that applies especially to that type of participant.



All U.S. Antarctic Program participants—including grantees, RPSC employees, visitors, and military—should use this handbook for general reference only. Authoritative guidance is provided in grant instruments, employment contracts, or other legally binding documents.

Some Antarctic Basics...

Antarctica...

This land-based continent is the highest, driest, coldest, windiest, and emptiest place on earth. An ice sheet covers approximately 98% of Antarctica. At its thickest point the ice sheet is 4,776 meters deep. This ice is approximately 90% of all the world's ice (by volume) and is 70% of all the world's fresh water. There are many penguins and abundant sea life along the coast – but there is little life on the continent, and there are no indigenous peoples.



A killer whale surfaces behind the Coast Guard icebreaker Polar Sea in McMurdo Sound.

Temperatures...

The mean annual temperature at South Pole Station is minus 56°F. During the austral summer, temperatures at McMurdo Station may reach as high as 50°F, while at South Pole Station, the summer temperature may reach 0°F. Palmer Station has a milder climate, with summer temperatures reaching as high as 55°F.

Daylight and Darkness...

Simply put, much of the area below 66.5 degrees south enjoys one long day and one long night each year – with weeks of sunrise and sunset in between. There are spectacular displays of aurora australis (southern lights) during the winter darkness.

Ownership...

No nation owns Antarctica. The Antarctic Treaty, which has been signed by 45 countries, reserves the area south of 60 degrees south as a zone for the peaceful conduct of research. Treaty nations coordinate and cooperate to maximize research results and minimize logistics requirements.

Size and Distance...

The continent is roughly 14 million sq. kilometers (5.4 million sq. miles). The USA is smaller at 9.36 million sq. kilometers (3.6 million sq. miles). The area of sea ice around Antarctica varies from 4 million sq. kilometers (1.0 million sq. miles) in summer to 20 million sq. kilometers (7.7 million sq. miles) in winter. The distance from Washington, D.C., to McMurdo Station is approximately 14,830 kilometers (9,920 miles).

Science...

Antarctica provides excellent conditions for scientific research on such topics as global warming, ozone changes, climatology, earth sciences, glaciology, astronomy, UV radiation, oceanic circulation, marine ecosystems, meteorite studies, etc.

History...

The existence of Antarctica was only hypothesis until it was first sighted in 1820-21. No one set foot on the continent until 1895. The South Pole was first reached in 1911 and established as a year-round research station in 1956. Antarctica's history is packed full of extraordinary stories of heroism and survival.

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CHAPTER 1:

U.S. Role in Antarctica



A researcher takes a break from studying Antarctic cod in McMurdo Sound to watch an Emperor penguin pass by.

Today's U.S. role in Antarctica derives from American expeditions to the region and diplomatic initiatives that have taken place almost since the birth of the Nation. This history has led to a continuous U.S. presence in the region since the 1950s and to a consistent U.S. policy toward Antarctica that has been reaffirmed repeatedly over the decades, most recently by high-level reviews in 1994, 1996, and 1997. Current Federal policy suggests continuation into the foreseeable future of a strong U.S. Government capability to support antarctic scientific research.

HISTORY

U.S. Expeditions, 1775-1948

The first Americans to work in the Antarctic were sealers and whalers who discovered many subantarctic islands and were first to explore parts of the great peninsula jutting out of the antarctic mainland toward South America. Among them was the youthful Nathaniel Palmer, who may have been the first person to see Antarctica. Sailing the 47-foot sloop *Hero*, Palmer almost certainly viewed the Antarctic Peninsula from a distance of about 5 kilometers on 16-17 November 1820. (Historians have not settled the question of who discovered Antarctica.) James Eights, a geologist from Albany, New York, became the first U.S. scientist to work in Antarctica. In 1830, aboard the *Annawan*, Eights made investigations in the South Shetland Islands and westward along the Antarctic Peninsula. Eights Coast, 90°-100°W. longitude, is named for him.

Expeditions sponsored by several nations approached the antarctic continent early in the 19th century. Among the leaders was Charles Wilkes, a U.S. Navy lieutenant who commanded an expedition in 1839 and 1840 that was the first to prove the existence of the continent. His expedition mapped 2,400 kilometers of antarctic coastline in the Indian and Australian quadrants.

For the next 70 years U.S. interest in Antarctica, outside of periodic whaling voyages, lay dormant. In 1928-1930 and 1933-1935 Richard E. Byrd led two privately sponsored antarctic expeditions, one of which included the first flight over the South Pole, and U.S. interest rose dramat-

ically. Another American, Lincoln Ellsworth, conducted a series of privately financed expeditions in the 1930s. Ellsworth's most memorable contribution was his transcontinental flight from Dundee Island off the Antarctic Peninsula to the Bay of Whales on the Ross Sea. The U.S. Antarctic Service Expedition (1939-1940), under the leadership of the Navy, maintained bases at Marguerite Bay and Bay of Whales.

Airplane flights and traverses continued the geographic and scientific reconnaissance that Byrd had started. The United States' Operation Highjump in 1946-1947 was the largest single expedition ever to explore Antarctica, involving 13 ships, numerous airplanes, and more than 4,700 men. Aerial photography was used extensively to record unexplored areas. The next year, the Navy's Operation Windmill used helicopters to complete some of the work begun during Highjump. Also that year, Finn Ronne led a privately sponsored U.S. Antarctic expedition, which reoccupied the Marguerite Bay base for a year and pushed exploration of the Antarctic Peninsula southward.

International Geophysical Year

The 1957-1958 International Geophysical Year (IGY) emphasized antarctic exploration and included research by 12 nations at 67 stations in Antarctica. For the first time, year-round stations were maintained in the continental interior, and the distribution of stations was sufficient to permit synoptic studies. It was the greatest coordinated scientific assault on Antarctica ever mounted.

The IGY is an antarctic milestone. It produced the first understanding of the broad relationships of the continent's ice topography, the discovery of many new major geographical features, and a revelation of the significance of the atmosphere above the continent. The U.S. established seven IGY antarctic wintering stations: four on the coast (Little America, Hallett, Wilkes, and Ellsworth), two inland (Byrd and South Pole), and a logistics base (McMurdo Sound). It made 6,000 kilometers of traverses, operated 10 to 12 ships each season, and flew 23 Navy and 8 Air Force airplanes. U.S. participation was administered by the U.S. National Committee for the IGY of the National Academy of Sciences. The National Science Foundation (NSF), a federal agency established in 1950 to support basic research and education in the sciences and engineering, administered funding for the U.S. science projects, and the Navy and the Air Force supported these efforts logistically.

Antarctic Treaty

No nation owns Antarctica. A passport is not required to enter. Perhaps because of this lack of ownership and freedom of entry, nations interested in Antarctica have developed a framework, the Antarctic Treaty, for cooperation and management of antarctic concerns.

The Antarctic Treaty entered into force in 1961, and its original 12 nations include those that were active in Antarctica during the IGY. The treaty is a remarkable achievement whose primary success has been to reserve the area south of 60 degrees south latitude as a zone of peace: it prohibits measures of a military nature, including fortifications, and it prohibits nuclear explosions and the disposal of radioactive waste. It gives treaty parties the right to inspect all areas of Antarctica, including stations, installations, equipment, ships, and airplanes, to insure continuing adherence to the treaty.

The treaty encourages scientific investigation in Antarctica and, to promote international cooperation, provides for annual exchange of plans, personnel, and scientific observations and results. The United States, a leader in both the establishment of the treaty and in its continued operation, cooperates extensively with the other treaty nations in scientific research and operational support. See The Antarctic Treaty in Appendix A.

Consultative meetings are held by the Treaty nations routinely. Measures supplementing the Treaty have been enacted at such meetings. The Agreed Measures for the Conservation of Antarctic Fauna and Flora, recommended at the third consultative meeting in 1964, resulted in passage in the USA of the Antarctic Conservation Act of 1978. A Convention on the Conservation of Antarctic Seals entered into force in 1978, and a Convention on the Conservation of Antarctic Marine Living Resources entered into force in 1982. Special consulta-

tive meetings during the 1980s led to a 1991 protocol for comprehensive environmental protection and a ban on mining. The environmental protocol entered into force in 1998.

Many nations are now members of the Antarctic Treaty. In addition to diplomatic interchange carried out under the Antarctic Treaty by the Department of State and its counterparts in other nations, leaders of the various national government antarctic program offices (NSF's Office of Polar Programs and its counterparts abroad) directly coordinate and exchange views and plans by means of a Council on Managers of National Antarctic Programs (COMNAP) and the Standing Committee on Antarctic Logistics and Operations (SCALOP).

UNITED STATES ANTARCTIC PROGRAM

The results of research performed during the IGY were so interesting scientifically that the USA and the other IGY nations decided to continue their antarctic work. The National Science Foundation (NSF) was given responsibility for the U.S. research effort and in 1959 established the U.S. Antarctic Research Program (USARP). Mapping, biology, and ocean sciences were added to the already active disciplines of geology and geophysics, glaciology, meteorology, and upper atmosphere physics. The Department of Defense was tasked to support the scientific effort and established a unit, Operation Deep Freeze, to perform this work.

After 1971, the National Science Foundation was assigned overall responsibility for U.S. activities in Antarctica. The term U.S. Antarctic Program (USAP) came into broader use to designate both the U.S. Antarctic Research Program and operational activities, including Operation Deep Freeze, that support the research program and other features of the U.S. presence in Antarctica.

Research is pursued in biological and medical sciences, ocean and climate systems, earth sciences, glaciology, meteorology, aeronomy, environmental sciences, and astrophysics so that an understanding of Antarctica's natural features and processes can be developed and the high latitude location of Antarctica can be utilized for study of near-earth and extraterrestrial processes. Results of U.S. antarctic research performed since the IGY have had a great role in developing understanding of Antarctica, its role in global change, and its ecological and environmental processes and have placed the U.S. in a position of scientific and diplomatic leadership in Antarctica.

2003 - 2004 USAP STATISTICS

- > Approximately 3,000 participants worked at U.S. Antarctic stations.
- > Approximately 90% of the participants traveled through New Zealand.
- Participants originated from 49 states and 4 countries.
- > Approximately 80% went during the austral summer season and 20% wintered.
- > The average participant's age was 38.
- > Approximately 34% were female and 5% were minorities.
- There were more than 150 different science projects, and over 600 science personnel performed research in Antarctica.



Programs to integrate research and education have become a part of the U.S. Antarctic Program as they have in other programs the National Science Foundation supports.

U.S. Antarctic Policy

Our Nation's policy for Antarctica has been consistent over the years. It is based on four principles:

- 1) nonrecognition of territorial claims
- 2) retention of the right to participate in any future uses of the region
- 3) use of Antarctica for peaceful purposes only
- 4) free access for scientific investigation and other peaceful pursuits

The nonrecognition of territorial claims dates to 1924, when the Secretary of State, Charles Evans Hughes, wrote that discovery of lands unknown to civilization "does not support a valid claim of sovereignty unless the discovery is followed by an actual

settlement of the discovered country." In 1934 the Assistant Secretary of State added: "I reserve all rights which the United States or its citizens may have with respect to this matter." President Franklin D. Roosevelt reaffirmed the U.S. stance in 1939: "The United States has never recognized any claims of sovereignty over territory in the antarctic regions asserted by any foreign state." And in 1947 Dean Acheson, the Under Secretary of State, wrote that the United States "has not recognized any claims of any other nations in the area and has reserved all rights which

it may have in the area."

As early as 1948, drawing on its leadership in antarctic and world affairs, the USA had proposed an international trusteeship. The seven original claimant nations and the USA (and other nations, if they wished) would have agreed "not to seek a division of the territory in the area, but to join with the others." The eight nations would make joint explorations and would have free access over the area.

For a decade the idea did not catch. Then the International Geophysical Year renewed ties, and in May 1958 President Dwight D. Eisenhower invited the 11 other antarctic IGY nations to come to Washington to draft an Antarctic Treaty. He wrote: "The United States is dedicated to the principle that the vast uninhabited wastes of Antarctica shall be used only for peaceful purposes... We propose that Antarctica shall be open to all nations to conduct scientific and other peaceful activities there." Referring to the IGY, the President wrote: "Our proposal is directed at insuring that this same kind of cooperation for the benefit of all mankind shall be perpetuated."

The Secretary of State, John Foster Dulles, referred to the extensive activities of U.S. expeditions to the Antarctic and set forth the basic position and proposal of the USA in these words:

In view of the activities of the United States and its nationals referred to above, my Government reserves all of the rights of the United States with respect to the antarctic region, including the right to assert a territorial claim or claims.

It is the opinion of my Government, however, that the interests of mankind would best be served, in consonance with the high ideals of the Charter of the United Nations, if the countries which have a direct interest in Antarctica were to join together in the conclusion of a treaty which would have the following peaceful purposes:

- A. Freedom of scientific investigation throughout Antarctica by citizens, organizations, and governments of all countries, . . .
- B. International agreement to ensure that Antarctica be used for peaceful purposes only.
- C. Any other peaceful purposes not inconsistent with the Charter of the United Nations.

It is believed that such a treaty can be concluded without requiring any participating nation to renounce whatever basic historic rights it may have in Antarctica, or whatever claims of sovereignty it may have asserted. It could be specifically provided that such basic rights and such claims would remain unaffected while the treaty is in force, and that no new rights would be acquired and no new claims made by any country during the duration of the treaty.

The nations met, the Antarctic Treaty was written, and all the proposed provisions were in it. The treaty entered into force in 1961. The Antarctic Treaty became the keystone of U.S. antarctic policy. See Appendix A.

In October 1970 President Richard M. Nixon stated U.S. policy for Antarctica to be:

To maintain the Antarctic Treaty and ensure that this continent will continue to be used only for peaceful purposes and shall not become an area or object of international discord.

To foster cooperative scientific research for the solution of worldwide and regional problems, including environmental monitoring and prediction and assessment of resources.

To protect the antarctic environment and develop appropriate measures to ensure the equitable and wise use of living and non-living resources.

The President added:

Science has provided a successful basis for international accord, and the Antarctic is the only continent where science serves as the principal expression of national policy and interest.

In 1970 and again in 1976, National Security Decision Memoranda 71 and 318 reaffirmed the "importance of maintaining an active and influential United States presence in the Antarctic" that is "responsive to United States scientific, economic, and political objectives."

In February 1982 President Ronald Reagan reaffirmed the prior policy and noted that the presence in Antarctica shall include "the conduct of scientific activities in major disciplines" and "year-round occupation of the South Pole and two coastal stations." See Appendix B.

In 1990 the Antarctic Protection Act (Public Law 101-594) banned mineral resource activities by U.S. citizens.

A 1993 decision by a U.S. appeals court established that the National Environmental Policy Act (Public Law 91-190) applies to U.S. Government activities in Antarctica. This decision requires the formal evaluation of any activities that may have environmental impacts.

The 1994 Presidential Decision Directive NSC-26, U.S. Policy in the Arctic and Antarctic Regions, states four U.S. policy objectives in Antarctica: protecting the environment; protecting opportunities for scientific research; maintaining Antarctica as an area of international cooperation for peaceful purposes; and conservation of living resources in the oceans surrounding Antarctica.

In 1996 the President's National Science & Technology Council concluded that U.S. national and scientific interests are well-served by continued involvement in scientific activity in the Antarctic. The policies laid out in the 1982 Presidential Memorandum 6646 continue to be appropriate. The Council's 83-page report, *United States Antarctic Program*, is on the National Science Foundation's Internet web site (http://www.nsf.gov/pubs/1996/nstc96rp/start.htm).

In 1997 an External Panel assembled by the National Science Foundation in response to a recommendation of the 1996 report concluded, "We believe the U.S. Antarctic Program is well managed, involves high quality science, and is important to the region as well as to the United States. We also believe that in the current budget environment costs must be reduced, preferably through increased efficiency and 'reinvention,' but, if not, through reduced scope." The panel's report helped to lead to a Congressional commitment of support for the present array of three U.S. Antarctic Program year-round stations and for major modernization of the U.S. research station at the geographic South Pole. The 94-page report, *The United States in Antarctica*, can be found on the NSF web site at http://www.nsf.gov/cgi-bin/getpub?antpanel.

ANTARCTIC PROGRAM STRUCTURE

There are three principal points-of-contact for information and assistance regarding the program: National Science Foundation, Raytheon Polar Services Company, and the 109th Airlift Wing, New York Air National Guard.

National Science Foundation

The National Science Foundation (NSF) has overall funding and management responsibility for U.S. activities in Antarctica. This responsibility involves several functions:

- Annual preparation of plans and budget for consideration within the Executive Branch and for review and appropriation by Congress
- Development of scientific goals for Antarctica, obtaining advice as needed from the scientific community, and communicating these goals to the scientific community
- Receipt of proposals for research and education projects from U.S. universities, other research institutions, and federal agencies; evaluation of these proposals for relevance to program goals, scientific merit, and logistics feasibility; and granting of funds (as available) to these institutions for performance of the projects in Antarctica and completion of analysis upon return
- ▶ Detailed planning of logistics, and transmittal of logistics requirements and necessary funds to elements of the Department of Defense and to the U.S. Coast Guard
- Facilities management, design, planning, engineering, construction, and maintenance
- Development and management of a contract with a commercial firm (currently Raytheon Polar Services Company) for operation of antarctic stations and research ships and related services including construction
- Development and implementation of a comprehensive safety, environment, and health program for U.S. activities in Antarctica
- Arrangement of cooperative scientific and logistics programs with other Antarctic Treaty nations
- Designation of a Senior U.S. Representative in Antarctica and on-site management of the field programs in Antarctica

• Serving as a clearinghouse and source of information regarding antarctic records, files, documents, and maps maintained within agencies and non-governmental organizations.

The staff in the National Science Foundation's Office of Polar Programs (NSF/OPP) has day-to-day responsibility for these functions. The address is: Suite 755S, National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230. Useful telephone numbers are:

Office Director	703-292-8030
Safety & Health	703-292-8032
Environment	703-292-8032
Antarctic Science Section	703-292-8033
Polar Research Support Section	703-292-8032
Information	703-292-8031
Permits	703-292-8030
Facsimile machine	703-292-9080
Web site	www.nsf.gov

Support Contractors

The NSF prime antarctic support contractor, currently Raytheon Polar Services Company (RPSC), provides support functions related to the program. The scope of work that RPSC is responsible for includes:

- Supporting science and operating research labs
- Procuring, arranging for transport, warehousing and issuing equipment and supplies
- Designing, procuring and constructing facilities
- Operating and maintaining stations, research vessels, and numerous field camps
- Arranging medical clearance and travel of parties
- Managing transportation of passengers and cargo
- Arranging annual resupply and fuel of McMurdo by Military Sealift Command contract ships
- Providing marine terminal operations
- Complying with safety, health, and environmental requirements

The Point-of-Contact (POC) for RPSC may be reached at 303-790-8606, fax 303-790-9130. The address is: 7400 S. Tucson Way, Centennial, Colorado 80112-3938, web site: www.usap.gov.

Other organizations are also contracted by NSF, RPSC and the Department of Defense to perform specific tasks. Some of these include: *Petroleum Helicopters Inc. (PHI)* for helicopter support, *Kenn Borek Air* for twin-otter aircraft support, *Aviation Technical Services (ATS)* for weather and aircraft control.

Department of Defense

The Department of Defense provides military logistics, reimbursed by the National Science Foundation, as part of the U.S. Antarctic Program, including –

- ▶ Shipborne cargo between the United States West Coast and McMurdo Station (Military Sealift Command)
- ▶ Shipborne fuel delivery to McMurdo Station (Military Sealift Command)
- ▶ Airlift (primarily C-141 and C-17) between Christchurch, New Zealand, and McMurdo (Air Mobility Command)
- ▶ LC-130 Hercules (ski-equipped) airlift in Antarctica and between Antarctica and New Zealand (109th Air Wing, Air National Guard)
- ▶ The annual resupply cargo ship is loaded and unloaded by the Navy Cargo Handling and Port Group
- Aviation technical services: weather forecasting, air traffic control, ground electronics maintenance (Space and Naval Warfare Systems Center)

The Commander, Support Forces Antarctica (CSFA), is responsible for antarctic military logistics, provided under a memorandum of agreement between the National Science Foundation and the Department of Defense. This person is so designated by the Commander in Chief, U.S.

Transportation Command, who has operational command of Department of Defense commonuser transportation assets and personnel when they are supporting polar programs.

Air National Guard Detachment 13, headquartered at the International Antarctic Center in Christchurch, New Zealand, provides command and control and flight operations support for Operation Deep Freeze and maintains a year-round U.S. military presence in New Zealand.

Department of Homeland Security

The Department of Homeland Security (U.S. Coast Guard) provides icebreaker services, reimbursed by the Foundation. These services include:

- ▶ Channel breaking the fast ice of McMurdo Sound in advance of the annual fuel and resupply ships
- Escorting supply ships into and out of McMurdo Station
- ▶ Refueling Marble Point
- Providing other assistance, including science project support, as required

Each Coast Guard icebreaker has an on-board aviation detachment consisting of two helicopters used for ice reconnaissance, personnel transportation, some cargo operations, and other support.

Department of the Interior

The Department of the Interior's Office of Aircraft Services (DOI/OAS) provides procurement assistance, contract administration, and inspection for commercial aircraft services contracted to the U.S. Antarctic Program. The Department's Geological Survey provides mapping control in Antarctica, compiles and publishes geologic and topographic maps, and administers Antarctic place-name decisions.

Department of State

The Department of State is responsible for the formulation of foreign policy and the provision of foreign policy direction relating to the development and implementation of an integrated U.S. program for Antarctica; for the conduct of foreign relations regarding Antarctica; and for legal matters relating to the interpretation and implementation of the Antarctic Treaty. The Department of State chairs the Antarctic Working Group which is a sub-group of the Interagency Working Group on Global Environmental Affairs. The Antarctic Working Group formulates policy guidance for U.S. activities under the Antarctic Treaty. Its members represent the Department of State (chair), the National Science Foundation, the Department of Defense, and other agencies as appropriate.

International Cooperation

Within the context of the Antarctic Treaty, extensive international cooperation takes place in Antarctica to more effectively accomplish both science projects and logistics. Some past and current examples are exchanges of personnel among projects and stations, cooperative planning and execution of large-scale science projects, and the exchange or shared use of logistics assets such as ships and airplanes. The U.S. has pursued cooperative projects with most Antarctic Treaty consultative nations.

The NSF encourages U.S. scientists to propose research at stations of other countries in Antarctica and to propose collaborative research using U.S. facilities. Grant funds may be available for travel, language training, and project support. Further information about exchange scientist opportunities may be obtained from science program managers at the Office of Polar Programs.

Two examples of this international cooperation are the Council of Managers of National Antarctic Programs (COMNAP), and the Standing Committee of Antarctic Logistics and Operations (SCALOP). The COMNAP website (www.comnap.aq) links to many of these international programs and organizations.

The **Scientific Committee on Antarctic Research (SCAR)** also helps to coordinate scientific activity in Antarctica. SCAR is a part of the International Council of Scientific Unions. It is a non-governmental body established to further the coordination of scientific activity in Antarctica with a view to framing scientific programs of circumpolar scope and significance. SCAR organizes symposia, prepares annual reports to ensure the regular exchange of information about scientific pro-

grams, develops long-range plans, and responds to special requests from the Antarctic Treaty consultative meetings. Most Treaty consultative nations are represented on SCAR. Experts in various disciplines from several countries are organized into groups that consider needs for scientific plans and areas of conservation. The SCAR web site is: www.scar.org.

The Polar Research Board, National Academy of Sciences, represents the U.S. on SCAR and provides liaison between the U.S. and foreign scientific communities.

SCIENCE PROPOSALS AND GRANTS

The mission of the National Science Foundation's Office of Polar Programs is to promote and support excellence in scientific research and education in and about the polar regions in accord with National policies and NSF's mission. In its administration of the U.S. Antarctic Program, the Office of Polar Programs receives proposals from scientists or groups of scientists who wish to conduct research projects in Antarctica. Each proposal is reviewed by the appropriate staff scientist and 3 to 10 other scientists selected for their expertise in one or more areas of the proposal. These "peer reviewers" are the source of the greatest volume and, of course, the most detailed scientific advice to the program. Although generally focusing on the details of a particular proposal, their reviews also shed light on broader questions of scientific merit and priority by virtue of comments relating the proposal to its general field of science.

Any scientist is considered eligible to be selected as a reviewer; most agree to do so when asked. Their opinions are given candidly and without compensation and are held in confidence except that verbatim copies are given to the proposer without revealing the name of the reviewer. These contributions are indispensable in setting priorities among projects and in maintaining high standards for the projects selected. For some disciplines, the NSF selects panels of experts from the research community to further evaluate proposals to assist in decision making.

The NSF obtains advice regarding the performance of antarctic research in other ways, also. An Advisory Committee for Polar Programs provides "advice, recommendations, and oversight concerning support for research and research-related activities in the polar regions." It meets each year to review specific programs and recommend procedural or other improvements.

A Committee of Visitors, operating on a continuing 3-year cycle, augments the advisory committee to assess program-level technical and managerial matters pertaining to proposal decisions.

The National Science Foundation web site (www.nsf.gov) provides more information about the U.S. Antarctic Program and NSF goals, plans, budgets, and activities. "About the NSF," for example, has the President's budget request to Congress for NSF, a discussion of how the agency is responding to the Government Performance and Results Act, and the NSF Strategic Plan.

"Awards Data" on the NSF web site contains a searchable database of grants, including abstracts and award amounts.

"Crosscutting Programs" describes Foundation programs to support focused research in selected multi-disciplinary areas and to integrate research and education. These award areas provide significant opportunities for antarctic investigators.

The "Polar Research" section describes research facilities in polar regions and antarctic and arctic research areas supported by the NSF.

The American Geological Institute web site contains the world's most complete antarctic bibliography, with abstracts (http://www.coldregions.org).

The U.S. Antarctic Data Coordination Center (http://nsidc/usadcc) collects descriptions of data sets compiled by U.S. Antarctic Program participants for entry into the international Antarctic Master Directory.

The U.S. Geological Survey has a searchable database of antarctic place names, maps and photographs at http://usarc.usgs.gov or 1-800-USA-MAPS or 1-800-USA-MAPS. Scientists and others working in Antarctica who have reason to name previously unnamed natural features are encouraged to use the material on the "Geographic Names" portion of this web site to recommend that the Advisory Committee on Antarctic Names, U.S. Board on Geographic Names, officially name such features. ■

CHAPTER 2:

Before You Leave Home



A helicopter picks up a team of scientists from a remote field camp in the Transantarctic Mountains.

You will travel through at least one foreign country, and in the Antarctic you will be living in a region that does not provide many of the modern conveniences to which you may be accustomed. Planning ahead is essential and will contribute greatly to your effectiveness and comfort. Please read the following information carefully. Your supervisor, science team leader or RPSC point-of-contact will answer any additional questions you may have.

PROGRAM REQUIREMENTS

Medical and Dental Examinations

You must pass rigorous medical and dental examinations before going to the Antarctic.

Antarctica is an extreme, remote environment, and medical facilities on the continent are limited. U.S. Antarctic Program facilities are equipped and staffed to provide routine ambulatory care that would be expected in a U.S. clinic and have the capability to stabilize and manage a range of emergency medical and dental conditions before transporting patients off the continent. However, medical evacuations take a lot of time and effort and place others at risk, even when the weather allows travel. Remote field camps and research vessels pose additional difficulties. Therefore, the Physical Qualification (PQ) process administered by RPSC seeks to screen out those conditions which cannot effectively be managed on the Ice.

This PQ process applies to all grantees, RPSC employees, contractors, military personnel, or guests of the NSF. Members of another nation's Antarctic program may be cleared through their country, but must provide RPSC their country's/program's clearance documentation and carry a copy of their medical records with them if they are to be stationed near and supported by U.S. medical facilities. A resident of a nation that does not have an Antarctic field program will be required to pass the U.S. Antarctic Program screening program. The U.S. Antarctic Program also maintains reciprocity with the U.S. Arctic Program.

Deployment clearance begins when RPSC is notified that you are a candidate to deploy to Antarctica, either through the Support Information Package (SIP) for grantees, hiring paperwork for contract employees, or other documents. The Medical Department sends each candidate a packet containing instructions, medical and dental examination forms, laboratory test package and/or instructions, release forms, a personal information form, and a copy of this Participant Guide.

Please read all of the instructions. The information in the packet will answer most of your questions about how to schedule needed exams and return the completed information back to RPSC in the envelopes provided. If you have further questions, or special circumstances, please contact your point-of-contact (POC), manager, or call the Medical Department. Contact information for the Medical Department is included in your deployment packet.



Grantees may be reimbursed or charge authorized examination, immunization and test costs to their NSF grant. Work with your Principal Investigator for procedures.



RPSC employees: If participants have their own insurance that covers some/all of the costs of the exam as "annual physicals," they should submit expenses to their insurance first. RPSC will reimburse the participant for approved out-of-pocket expenses.

Note for All

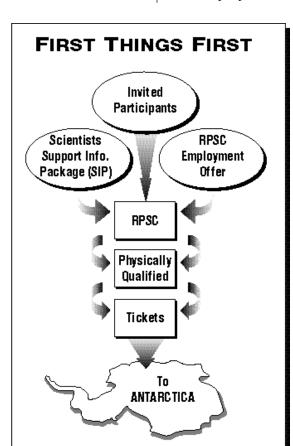
Treatments to resolve dental conditions or other items required to meet U.S. Antarctic Program screening criteria may not be reimbursable. Please check with your health coverage or RPSC Medical before scheduling exams or additional work that is not listed on your original checklist.

You or your doctor/dentist should mail the completed documentation to RPSC Medical in the envelopes provided. If your providers have questions concerning the deployment exam, required

labs and/or tests, direct them to the *Dear Doctor* and *Dear Dentist* letters in the packet for detailed instructions. **Note that original dental x-rays are required**. The required laboratory samples (blood and urine) may be drawn during your doctor's exam or at a separate specimen-drawing appointment. Remember to fast at least 10 hours before the samples are collected. If a laboratory sample box is included in your packet, use the enclosed sample containers and have your physician mail them to the contracted laboratory using the materials in the medical kit. The contracted lab will bill RPSC directly for these tests. You will not pay (or be reimbursed) for anything beyond the specimen collection (venipuncture costs).

Candidates are responsible for scheduling their examinations early to ensure that complete information is provided to RPSC **no less than 8 weeks** prior to their planned departure for Antarctica. You should start the process as early as possible in case additional testing is required for your clearance. Ensure that all contacts at RPSC and your point-of-contact know how to contact you at all times (phone and/or e-mail) in case additional information is required. Airline tickets will not be issued until you are physically qualified (PQ'd). Tickets are normally sent 2 weeks before your departure date. The best rule is to submit your information as early as possible to allow time for problems or re-testing.

Medical and dental examinations must be current to within six months of your deployment. While physical qualification is considered valid for 12 months afterward, the physician reviewer may require additional information or review to maintain PQ status. This is particularly true for personnel cleared for summer deployment who are staying for the



Antarctic winter season.

All medical information, laboratory results, x-rays, dental exams, releases, and personal information forms are the property of the U.S. Antarctic Program and will not be returned to candidates. Make copies of information you desire to keep. Medical records generated from these documents will be sent to the clinic staff at the appropriate U.S. Antarctic Program facility to be referenced. For privacy, the only other people authorized access to these records are the medical personnel at RPSC or NSF headquarters who have valid need to use them for quality control purposes. You may request copies of your medical records that are maintained by the U.S. Antarctic Program, but reproduction charges may apply.

Waivers. Candidates who do not meet U.S. Antarctic Program criteria and are determined "Not Physically Qualified" (NPQ) may request a waiver, which the National Science Foundation will review. Ask RPSC Medical for instructions on submitting a waiver request. Be aware that additional testing or treatment needed for a waiver may not be reimbursable. Also note that the waiver process can take up to eight weeks, and your position may be offered to an alternate if you cannot make your deployment date while awaiting the results. Submit your information early and completely to allow time for any problems that might arise.

Immunizations

As the medical instructions sent to you indicate, you are required to have had tetanus immunization, current within the last 10 years. The following immunizations are also recommended to minimize the spread of illness in the communal living areas found in Antarctica:

- Influenza vaccine for current season. The current season's vaccine is available in late September of each year in the northern hemisphere;
- Pneumovax for participants who are age 64 or older, or have special medical conditions. Please consult your physician regarding this immunization.

If you are planning travel after your deployment, in tropical South America for example, you may need other immunizations. Consult your physician or the Center for Disease Control (CDC) international hotline (404) 639-3534 and (800) 311-3435 or at www.cdc.gov for current recommendations on the areas you plan to travel.

If immunizations or medicines (malaria prophylactic, for example) are required prior to your travel, you will need to purchase them before leaving home and bring them to the clinic upon arrival on station. The immunization will be administered to you at the end of the season.

No immunizations are required for return to the U.S. Under international health regulations, other countries may require international certificates of vaccination against yellow fever.

More information on health considerations is covered in Chapter 6.

Privacy Act Compliance

All medical information gathered from you by NSF or its contractor is maintained in accordance with the Privacy Act of 1974 (Public Law 93-579). The law provides that you may have access to your own records, that you may make copies of them, and that you may provide RPSC information to correct or dispute records you feel are inaccurate.

NSF's authority to collect medical, dental, and psychological information derives from its authority to prescribe rules governing its operations as set forth in section 1870(a) of title 42 of the U.S. Code. If you do not provide the information requested, you may be disqualified from the U.S. Antarctic Program.

Extreme Cold Weather (ECW) Clothing and Emergency Contact Information

As part of your planning package, you will receive a **Personal Information Form** that solicits information necessary for advance preparation of your Extreme Cold Weather (ECW) clothing, which will be issued to you on loan when you pass through Punta Arenas, Chile, or Christchurch, New Zealand. It also asks for your next-of-kin or other contacts for use in the event of an emer-

gency. Copies of this form are kept on file by RPSC. For more on ECW clothing, see Chapter 5 of the *Participant Guide*.

Travel Arrangements

RPSC Deployment Specialists Group (DSG) begins work on your ticketing and itineraries early in the qualifying process. You may be consulted in advance to establish your deployment date, but your itinerary and tickets will not be released and delivered to you until you have been deemed physically qualified.

The DSG does not issue tickets with originating travel from outside the United States unless specifically approved in advance by the NSF. Such participants provide their own ticketing from their country of origin to their Principal Investigator's institution in the U.S.

You will travel through New Zealand, Chile, or other countries en route to Antarctica, using airline tickets provided by the U.S. Antarctic Program.

International Air Transportation Fair Competitive Practices Act of 1974 (better known as the Fly America Act) requires the use of U.S. carriers (coach class) whenever available when RPSC is the ticket buyer. The Supervisor, Deployment Specialists Group, reserves, purchases, and issues your tickets for direct air travel from your home airport to New Zealand or Chile. This information is taken directly from travel information submitted by you, your supervisor, or your Principal Investigator (PI). Any deviation from the direct route must be authorized in advance by the NSF program manager or RPSC management. To get the best fare, airline tickets take at least 3 weeks to process. Any personal travel is your responsibility.

Travel through Argentina is coordinated on an individual basis through the RPSC Logistics Supervisor, Peninsula Area.

When the tickets are delivered to you, make sure the date and time of travel are what you expected. Make sure the name printed on your tickets corresponds to the one in your passport, i.e., no nicknames. If your tickets have discrepancies, contact the RPSC Deployment Specialists Group (1-800-688-8606, prompt 2). Also, if you received permission for excess baggage, ensure that the excess baggage coupons are included in your ticketing package.

Every effort is made to obtain flight dates as requested, but this is not always possible. Whenever possible, RPSC schedules travel to avoid Sunday and holiday arrivals. Remember that during the southbound trans-Pacific flight you cross the International Date Line, losing a day. For example, if you leave the U.S. on Thursday, 8 October, you arrive in Auckland Saturday morning, 10 October.

Your **Airport of Departure (AOD)** is the location you designate as your residence on either the Support Information Package (SIP) or your employment agreement, and is the city to which you will be returned. You will not be able to change your airport of departure once your tickets have been issued. The only exception would be proof of a change of residence that occurred during your deployment and approved prior to re-deployment by RPSC Management.

Expenses

Grantees: Your PI or team leader can give you information on what expenses are covered by your grant and any special training or meetings that may be required.

RPSC Employees: You will be required to attend a deployment orientation once per year. This orientation will be held in Denver, Colorado, or Christchurch, NZ. The orientation is intended to familiarize you with the U.S. Antarctic Program as well as RPSC policies.

If you have not already provided, please bring the following to the orientation:

- ✓ Your financial institution routing number (for direct deposit)
- ✓ A voided check (for direct deposit)
- ✓ Your beneficiary's name (if any), address, social security number (savings bonds, 401k)



- ✓ Your stateside representative's name, address, phone number (the person designated to handle your financial issues, receipts, etc.)
- ✓ Any receipts or expense reports (for travel expenses, out of pocket medical/dental, passport fee

Depending on your position with RPSC, you may be assigned to the home office for a period of time before departure to prepare for your new job and/or attend training sessions. If you work for a period of time in the Denver office, Colorado state taxes will be deducted from your paycheck.

PASSPORTS, VISAS, AND PERMITS

Passports

You must have a valid passport before leaving the U.S. Obtaining a passport is your responsibility and typically takes at least six weeks. To apply for a passport you must present a Department of State Passport Office with two photos and a certified copy of your birth certificate. Notarized birth certificates are no longer accepted. Updated information can be found at http://travel.state.gov.

If you are a federal employee, your agency must obtain an official passport by contacting the Passport Division, Department of State. **Bearers of official passports require visas in some countries that may not require visas of regular passport bearers**. Note, particularly, that the technicalities of entering Argentina put bearers of official passports at a disadvantage when embarking upon or debarking from U.S. antarctic vessels in Argentina.

If you already have a passport, make sure that it is not scheduled to **expire** during your overseas stay. This is especially important for wintering personnel. Your passport should be valid at least 6 months beyond the intended stay (or at least 1 month beyond the intended stay if the issuing government has consular representation in New Zealand or South America and is able to issue and renew passports).

It is a good idea to keep a photocopy of your passport (including pages containing visas) in a separate place in the event that your passport is lost. **Never** risk mailing your passport from Antarctica.



RPSC employees are reimbursed for the expense incurred in obtaining a passport. Reimbursement is handled via the RPSC form PA-A-101a, Passport Reimbursement form. However, RPSC does not reimburse for charges related to obtaining birth certificates or replacement of lost/stolen passports. Expedite fees may be reimbursed, but must be requested in advance. Contact the Deployment Specialist Group via phone or e-mail.

Visas

In addition to a passport, many countries require a visa. The requirements of the three countries through which most U.S. Antarctic Program travelers pass are explained below. Any **necessary visa should be obtained before leaving the U.S.** by contacting the embassies of the countries to be visited. Failure to do so may complicate or delay your travel. The U.S. Antarctic Program does not pay for or provide assistance in obtaining visas. If your New Zealand or Chilean visa application requires an itinerary and letter of participation in the USAP, please contact the DSG at 1-800-688-8606, prompt 2, or via e-mail at deployment@usap.gov, and the required documentation will be provided.

New Zealand. A visitor's permit is required for all holders of U.S. passports and will be issued at Auckland Airport upon arrival in New Zealand. The total time spent in both New Zealand and Antarctica is recorded by New Zealand Immigration as time spent in New Zealand. If your visitor's permit expires while you are in Antarctica, you have 14 calendar days after your return to New Zealand to apply to Immigration for an extension. If you leave New Zealand before the expiration of 14 calendar days, you will not need to extend your visitor's permit.

Chile. If you will be traveling on a tourist (private citizen) U.S. passport, you do not need a visa to enter Chile. Tourist cards are issued by the airlines in Chile. They must be surrendered

to customs upon departing the country. Bearers of U.S. Government passports do need a visa, available from the Chilean Embassy, 1732 Massachusetts Ave., N.W., Washington, DC 20036 (202-785-1746). Send a letter stating the purpose of your visit; enclose your passport and a return envelope.

Argentina. If you will be traveling on a tourist (private citizen) U.S. passport, you do not need a visa to enter Argentina. Bearers of U.S. Government passports do need a visa, available from the Argentine Embassy, 1600 New Hampshire Avenue, N.W., Washington, D.C. 20009 (202-667-4903). Send a letter stating the purpose of your visit; enclose your passport and a return envelope.

Australia. Many U.S. Antarctic Program participants travel through Australia for business or pleasure, and this requires a visa for U.S. (tourist) passport holders. Usually this can be accomplished electronically at a ticket counter but you may be required to submit an application and send your passport to the Embassy of Australia, 1601 Massachusetts Avenue, N.W., Washington, D.C. 20036 (202-797-3000).

Visas for noncitizens. Foreign nationals residing in the United States are responsible for obtaining the appropriate visas from their country before leaving for Antarctica. Contact the embassy of the country through which you will pass to learn requirements.

If you are not a citizen of the United States, you will need a two-entry visa (one for initial entry and one for return from Antarctica) for New Zealand or for South American countries through which you will pass. It is your responsibility to check with an official of your country well before the planned departure; the U.S. Antarctic Program will not act on your behalf.

Resident aliens in the U.S. should determine any other regulations that govern absence from the U.S. by checking with the U.S. Immigration & Naturalization Service. Lack of compliance with regulations can cause loss of accrued residence time benefits that are applicable toward citizenship and/or re-entry. It can take several months, and even a visit to the consulate, for non-U.S. citizens to get these visas.

U.S. visas for foreign nationals. If you are a foreign national not residing in the U.S., and will be traveling to the U.S. after you have been to Antarctica, please review this important visa information. All foreign nationals must be able to prove that they have compelling ties in their home country (e.g. family, job, property, etc.), to which they must return upon completion of the studies, exchange program, or business in the U.S.

Applicants for visas should apply at the American Embassy or Consulate with jurisdiction over their place of permanent residence. Although visa applicants may apply at any U.S. consular office abroad, it may be more difficult to qualify for the visa outside the country of permanent residence. Review the Department of State Visa Services Internet information at http://travel.state.gov/visa_services.html for exchange visitor visa (J) and student visa (F or M) information and requirements.

Contact the Embassy Consular Section in the traveler's country to determine any additional visa procedures, timeframe required to set up an appointment for interview, and schedule an appointment for interview. An interview is required for most visa applicants. The waiting time for an interview appointment for most applicants is a few weeks or less, but for some embassy consular sections it can be considerably longer. Some applicants will need additional screening, and will be notified when they apply. Contact the Embassy Consular Section via the Internet at: http://travel.state.gov/links.html. For a few countries, foreign travelers will need to contact the Consular Section by telephone. For both initial and continuing exchange visitors or students, after receiving program sponsor approval and documentation, applicants should apply for his/her visa as soon as possible, to the U.S. Embassy Consular Section in his/her country of residence.

Permits and Approvals

NSF grantees may need to obtain permits for transporting samples, and species, for entering protected areas, shipping samples and radioisotopes, etc. These permits can take at least 65 days to get and cannot be obtained from Antarctica. Your Support Information Package (SIP) contains the actual applications and describes what is required and where to file the applications.

NOTE: NSF is required to have copies of all active permits on file. The process of obtaining permits and copying the NSF office is described in detail in Chapter 4: Conservation, Permits, and Science Cargo.

Radioisotopes. Approval by the NSF/OPP to use radioisotopes in the Antarctic must be obtained before any radioactive material is shipped south. Principal Investigators must request this permission through the Support Information Package (SIP) or by contacting their RPSC point of contact. Failure to do so may result in delay of shipment receipts for the project or in return of the shipment to the vendor or home institution. Please refer to the "USAP Packaging and Shipping Instructions" for the most current guidance. It is available online.

Diving qualifications. Some science projects in Antarctica require SCUBA diving. If so, the PI must obtain prior approval from NSF. To do so requires submitting a dive plan that includes information about each proposed diver's training and experience. The home institution diving safety officer or equivalent must also provide comments and approval of any request to dive in Antarctica. Approval at this level may fulfill basic U.S. Antarctic Program requirements and preclude the need for additional training. PI's will receive a diving packet from RPSC with specific instructions regarding how to submit their requests.



Grantees: Antarctic Scientific Diving Manual (NSF 99-22). This book contains information on certification, dive sites, environment, operations, emergencies, reference tables, etc. Guidelines for funded research diving activities can be found in the U.S.A.P Guidelines for the Conduct of Scientific Diving. Contact your POC to receive a copy.

Firearms. The use of firearms is prohibited without advance permission from the Office of Polar Programs, National Science Foundation. Request permission by letter, stating:

- ▶ Purpose of the firearm
- ▶ Make and caliber of the firearm
- Type and amount of ammunition

Upon completion of your field work, you must report the disposition of firearms and excess ammunition to the Office of Polar Programs, National Science Foundation. This information will be reported to the other Antarctic Treaty nations, as required by the Antarctic Treaty.

New Zealand Agriculture. Like most nations today, New Zealand has restrictions on what may and may not enter the country. Goods are restricted if they are known to carry pests or diseases that could endanger native plants and animals. Travelers are required to declare all restricted goods when they enter New Zealand. Some examples of restricted goods are dairy products; fish, fruit, and vegetables (fresh/dried/frozen/cooked); herbs and spices; noodles and rice; nuts; bamboo, cane and basketware; cut/dried flowers and leaves; seeds; wooden artifacts; camping equipment; feathers, bones, horns and tusks; furs and skins; soil and water; wool (unprocessed) and animal hair. All restricted items will be examined on arrival and if found to comply with current requirements will be permitted to enter. People who knowingly bring restricted items into New Zealand and do not declare them will be prosecuted and will be subject to severe penalties.

Some goods prohibited from entry into New Zealand include honey; eggs and egg products; meat and meat products; popcorn (un-popped); plants (live/dried); straw; shells and coral; ivory; turtle and tortoise shells.

CUSTOMS

Your baggage will be inspected by customs officers and may be inspected by dogs that are specially trained to detect narcotics. In addition, thorough searches of luggage and individual clothing items, as well as body searches, are routinely conducted by the customs authorities at the time of entry.

Importation and possession of controlled drugs without prescriptions, marijuana, weapons (especially firearms and switchblade knives), and pornography. Certain animal/agricultural products are strictly prohibited when entering New Zealand. Violators will be instantly fined \$200 or more. For current information regarding New Zealand, visit http://www.maf.govt.nz/biosecurity. Transportation of the above-mentioned items aboard U.S. military ships and airplanes is also prohibited by federal law.

Travelers are able to carry **personal effects** in their normal luggage. Personal effects are articles a traveler may reasonably require for personal use during the journey such as clothing, footwear, watches, brushes, and toilet requisites. Personal effects can also include jewelry (but not unmounted semi-precious or precious stones). Personal effects refer to the goods that accompany you on arrival or have been purchased duty free either prior to your departure or on your arrival; are for your own private use, or intended as gifts; are not imported for commercial purposes or for use in your business and/or professions; and are not imported for other persons at their request.

There are limits on quantities of tobacco and alcohol that can be brought into many countries. Please refer to these websites for current customs regulations:

New Zealand: http://www.customs.govt.nz Chile: http://www.aduana.cl/home_ingles.htm

In addition to the personal effect concession, each passenger is entitled to the Visitor Concessionary Entry of other items that a visitor normally carries. This includes items such as a laptop computer, cameras (including video cameras and a reasonable quantity of film), a pair of binoculars, and a portable radio. These goods must be for personal use and the goods will be taken with the passenger when he/she leaves the country.

NOTE: The purchase of duty-free items in New Zealand prior to boarding a military airplane is prohibited. Duty-free articles are usually delivered to passengers upon check-in for commercial international flights; however, due to security measures associated with boarding a military airplane bound for Antarctica, it is not possible for representatives from a duty-free shop to deliver goods to you.

Customs and Your Equipment

If you will be taking or shipping technical equipment to Antarctica through another country, prepare in advance to avoid two possible costs: (1) paying import duty or posting bond to a foreign country (even though your equipment is only passing through!) and (2) paying duty when you bring the equipment back into the U.S.

Technical equipment includes any *valuable* items of foreign make (other than the personal effect concession mentioned above) such as scientific equipment or numerous computers or professional cameras, which you plan to take with you to Antarctica. If these items are not registered with U.S. Customs or you do not have proof of previous payments for such items, you may have to pay import duties on them upon your return to the U.S. You cannot be reimbursed for such costs. Customs regulations also require that prescription drugs be hand-carried and not placed in checked baggage.

Scientific or technological equipment (including personal computers, spare parts or other equipment carried for RPSC) that you carry as part of your personal luggage is likely to be charged a customs duty and/or tax, or impounded if such a duty or tax is not paid. If you do not have a receipt or the item was a gift, customs will determine the value. NSF Contractor Representatives will not cover charges for customs duties or taxes. All scientific or technological equipment should be shipped from the United States and Antarctica as cargo (all cargo is designated NSF and hence is exempt from duty and taxes).

Customs registration must be made in person, and you must possess the articles and serial numbers to be registered. Registration can be made at any international airport in the U.S. that originates overseas flights, i.e., Denver, O'Hare, Los Angeles, Miami, Seattle-Tacoma, Kennedy, etc. Also, Coastal Customs Registration Centers are located in the World Trade Center, Los Angeles.

It is suggested that you prepare a list of items (with serial numbers and/or appropriate docu-

Items such as cameras, tape recorders, stereos, and radios must have a serial number and should be registered in advance.

mentation) prior to your arrival at the registration center. This information can then be easily transcribed to the customs registration forms available only at the centers.

There are several methods of protecting against payment of unwarranted duty:

Registry with U.S. Customs. To ease re-entry and before leaving the U.S., you can register equipment such as cameras with U.S. Customs by completing U.S. Customs Form 4457. Contact Customs at any U.S. international airport.

Letter from your institution. When carrying science equipment as accompanied baggage, list it on your institution's stationery and include a statement that the material will be used for research at a U.S. Government antarctic station. Keep the list with the material to ease clearance through Customs in Argentina and Chile. This letter is not enough when going through New Zealand.

Temporary importation of your equipment into New Zealand. A customs law is in effect for non-military United States Antarctic Program participants entering New Zealand. Grantees, contractors, and other visitors carrying high-tech and scientific equipment (not including laptop computers) as part of their luggage must carry a New Zealand Customs form stating (1) that the goods will not be left, sold, or disposed of in New Zealand without the written permission of New Zealand Customs, (2) that the goods listed will be finally exported from New Zealand within 12 months of their first landing, and (3) a list of the equipment and its value. The RPSC Denver office administers the forms. Appropriate forms must be obtained from the RPSC Travel Supervisor, in Denver before you depart for New Zealand and must be returned to the RPSC Travel Supervisor upon return to your home institution.

NOTE: Technical event participants fall into a special category. Contact the RPSC Deployment Specialists Group.

Carnet de Passage. Visitors from the media and other organizations who are guests of the U.S. Antarctic Program rather than science participants are not issued NSF letters for their professional equipment. To avoid paying the customs duty, anyone carrying professional equipment including cameras and other recording devices must have a Carnet. NSF Representatives will not help you get a Carnet and will not pay customs duty for you.

If you have a Carnet, you do not also need to register items with U.S. Customs. Obtain the Carnet de Passage for Temporary Admission before you leave for Antarctica. In the U.S., the U.S. Treasury has appointed the U.S. Council for International Business to issue Carnets. Issuing offices are located in California, Florida, Illinois, Maryland, Massachusetts, New York, and Texas. For addresses, contact:

U.S. Council for International Business

Frederick Mardis www.uscib.org 1212 Avenue of the Americas tel. 212-703-5080 New York, New York 10036 fax 212-944-0012

PERSONAL MATTERS

Before you leave for Antarctica, take care of your personal affairs. Designate someone you trust as your **stateside representative.** It can be difficult to handle financial or other personal affairs from Antarctica. Because mail delivery to Antarctica is not always reliable or timely, you **should NOT forward your mail** or change your address to Antarctica. You will be able to communicate with your stateside representative by telephone and e-mail.

Personal Finances

Take enough money with you, preferably in travelers checks, to meet all eventualities. Most foreign banks will not cash personal checks or cashier checks drawn on your home bank. National Science Foundation representatives in New Zealand will not advance funds nor will they vouch for a personal check.

NOTE: Make sure that your ATM and credit cards do not expire while you are away from home. International credit cards (like *American Express, MasterCard, and Visa*) are generally accepted

in New Zealand and South American countries. Countries sometimes offer better exchange rates for travelers checks than they do cash.

You will probably need at least \$500 for a round trip between the U.S. and Antarctica. This amount will vary with personal spending habits, length of stay, and travel delays. Allow additional funds for the purchase of personal items (soap, razor blades, souvenirs, etc.) in Antarctica. There are two ATM machines at McMurdo Station but none at the other facilities.

Banking in New Zealand. Banks in New Zealand will exchange U.S. cash and travelers checks into New Zealand currency. You can also withdraw funds from banks using your Visa and Mastercard credit cards, if you have previously established a Personal Identification Number (PIN) with your bank. Automatic Teller Machines (ATMs) marked with 'Plus' or 'Cirrus' accept credit cards (with a PIN number) as well as ATM and debit cards.

The BNZ Auckland Airport international terminal branch is open for all incoming and outgoing international flights, from approximately 5:15am until midnight, 7 days a week. The domestic terminal branch is open from 8:00am until 4:00pm.

The BNZ Christchurch international airport branch and the BNZ International Departure Terminal is open 7:30 am to 5:30 pm, 7 days a week. The BNZ at Christchurch International Departure terminal is also open for two hours prior to all international departures if you need to exchange money.

If you need additional money in New Zealand after you get to Antarctica, here are two ways to transfer money there:

1. Have your U.S. bank send by certified air mail a bank draft drawn on the Bank of New Zealand to:

c/o NSF Contractor Representative, NZ HOLD IN CHRISTCHURCH FOR [your full name; project # or RPSC] PSC 467 Box 296 APO AP 96531-1034

2. Arrange for your U.S. bank to send funds by telegraphic transfer (this can take 72 hours) in your name to:

Bank of New Zealand
Christchurch Airport Branch
Christchurch International Airport
New Zealand
Hold for "your full name"
BNZ Christchurch Branch's code is SWIFT-BK NZ N 22100.

The transaction should be marked, "Hold funds against identification for [your full name] who will call on return from Antarctica." These arrangements are more easily made with larger U.S. banks that have international connections. If you deal with a small bank, we suggest you discuss the subject of transferring funds with them before you depart for Antarctica.

Banking in Chile. In Santiago, Chile, money exchange is available only in the international terminal (not the domestic terminal). Please be aware that there will probably not be time to exchange money upon your arrival and before your departure, but U.S. currency can be used for taxes and fees (see Chapter 5 for more information). Banks in Punta Arenas, Chile, are closed half of Saturday and all of Sunday, so plan accordingly. Automatic Teller Machines (ATMs) marked with 'Plus' or 'Cirrus' accept credit cards (with a PIN number) as well as ATM and debit cards.

Joint bank accounts and debt payments. If you will need to draw funds from a bank account while you are in Antarctica, you may wish to have the account established jointly with another person to permit the other person to withdraw the funds as required. The joint tenant of the account can legally withdraw any and all funds whenever he/she wants.

Arrange for the regular payment of insurance premiums and any other term debts that you may have while in Antarctica.

Mail service from McMurdo and South Pole Stations is **not** available during the austral winter, and is erratic in the summer season. You are advised not to rely on the mail service to pay bills from Antarctica (see Postal Services in Chapter 6). McMurdo's winter period is February to October (some mail gets in/out in late August), and South Pole's is February to November.

Absentee ballot. If you wish to vote in any local, state, or federal elections by absentee ballot, you must arrange to receive an absentee ballot from your voting authorities. Keep in mind the uncertainties of mail in and out of Antarctica. Winterers usually have to forego participation in elections held during periods of station isolation. Voting by radio or by teletype is not permitted by state election officials. Be sure to check absentee voting requirements of your home precinct before you leave for Antarctica. This is your responsibility.

Annual leave. Employees of some organizations may be subject to loss of accrued annual leave while in Antarctica. Consult your personnel officer regarding use of leave before departure. Some federal employees may not carry-over excess leave time while in Antarctica.

National Guard or Reserve. If you are a member of the National Guard or Reserve, see your commanding officer to make arrangements for your absence.

Income Tax

Make sure that you will not incur penalties through failure to file tax returns or to pay your taxes. For federal income tax returns, due April 15, you may request an extension for filing from the district director of the Internal Revenue Service. However, interest is charged on the unpaid balance of your tax beginning April 15.

You can file your income taxes online or give someone power of attorney to act as your agent in filing your income tax returns (federal, state, and local). IRS district directors have forms for this purpose, or you may have a lawyer draw up the document. Remember that if your agent fails to file the return, you are still the one who has to pay the delinquent tax penalty.

The IRS does not consider Antarctica extraterritorial, so U.S. tax law applies. For further information you can contact the IRS. District directors are in each state at the same address where you normally file tax returns. For more information, go to www.irs.gov.



RPSC Employees: State and Federal income taxes are withheld from all RPSC employee paychecks.

Power of Attorney

You may wish to establish a general or a special power of attorney before leaving home. A general power of attorney permits your agent to act for you in ordinary business and commercial transactions: to endorse and write checks, to sign documents and bills of sale on your behalf, and so forth. A special power of attorney restricts the agent's authority to functions specifically described. For example, you might empower your agent only to sell a particular piece of property for not less than a stated price.

Some institutions, such as savings banks, may refuse to accept a power of attorney; they require you to make special arrangements with them before others may withdraw your funds. Individuals may be reluctant to deal with your agent under a general power of attorney if the authority for a particular transaction is not specifically set forth, or if your agent's authority is otherwise in doubt. Consult a lawyer before drafting a power of attorney. A power of attorney automatically expires at the time of your death and defers to information contained in your will.

Wills

A will ensures distribution of your estate as you desire and not arbitrarily, as state laws require if there is no will. You are urged to consider having one prepared before you depart for Antarctica.

Notary Services

No universally recognized notary services are available in Antarctica. Therefore, you cannot count on being able to execute or revoke legal documents requiring notarization. Make every

effort to settle outstanding legal matters before you leave for Antarctica.

Insurance

Notification of Injuries and Evacuations. If you are injured while working in Antarctica or if you are taken to New Zealand or South America for a medical consultation or evacuation, the U.S. Antarctic Program management will not notify your family of the injury if you are physically capable of contacting your family members on your own. In the event you are physically unable to notify your family members, U.S. Antarctic Program management will contact your emergency contact (not necessarily at your request).

In the event of a major accident that will make news headlines (e.g., plane or helicopter crash), U.S. Antarctic Program management will advise the emergency contact of those participants involved.

Personal property and cargo insurance. A loss of personal property in Antarctica through fire, theft, or any other means should be protected by individual personal property insurance. It is your responsibility to obtain this coverage. The U.S. Government normally does not assume liability for damage to or loss of personal property unless there is clear evidence of negligence by government personnel acting in the scope of their employment. Although every effort is made to care for cargo (personal or scientific) the U.S. Antarctic Program is not responsible for any damage that may occur.



Grantees: Make sure you have adequate insurance for your stay in Antarctica. A National Science Foundation grant for work in Antarctica does not provide insurance coverage. Check with your employer or a financial consultant to find out what insurance you have and to decide what you should have. Consider the following areas:

Health insurance. Civilian personnel receive free medical care in Antarctica, but, if necessary and possible, you will be evacuated from the continent and perhaps hospitalized at a foreign or



- ☐ Passport is current and won't expire while away
- ☐ Obtained any necessary visas
- ☐ Obtained required ACA and transport permits
- ☐ Prepared for customs requirements
- ☐ Stateside representative is in place
- ☐ Physically qualified by RPSC Medical
- ☐ Received and verified tickets and itinerary
- ☐ Packed bags using guidelines
- ☐ Have traveling money; traveler's checks, travel fund, ATM card, credit card
- ☐ Have calling card
- ☐ Shipped cargo ahead
- ☐ Arranged a ride to the airport



U.S. hospital. There, you will be **responsible for costs** of hospitalization, medical care, laboratory fees, and any other charges. Before leaving the U.S., examine your health coverage and buy insurance if you need it.

Worker's Compensation. If you will be working for an investigator as a volunteer, remember that worker's compensation coverage may not be provided.

Life insurance. Grantees and their team members are urged to have adequate life insurance. Federal employees' Civil Service policies remain in effect during antarctic duty. Examine your insurance coverage before departure to ensure you are adequately covered. The National Science Foundation does not provide life insurance for its grantees in Antarctica. In making arrangements for insurance, keep in mind that antarctic flights are generally considered non-scheduled military airplane operations. Check with your institution to see whether its group policies for employees provide coverage or exceptions for travel and work in remote regions.

Some insurance companies offer air travel insurance for scheduled commercial and Air Mobility Command flights. This insurance is available at most commercial airports and Air Mobility Command terminals. It generally does not cover you during flights from New Zealand or other countries to Antarctica or during flights in Antarctica.



RPSC Employees: Employees will be eligible to enroll in various insurance options including medical, prescription drug, vision care, dental, life insurance, accidental death & dismemberment, long-term disability and short-term disability. The following coverage levels are available: employee, employee & spouse/same sex domestic partner, employee & children, employee & family. The cost of the coverage for the contract employee and their dependents is shared between the employee and RPSC. Benefits are reviewed annually and may change after the publication of this book.

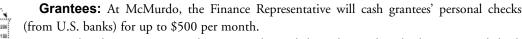
If you are required by the station medical doctor to leave Antarctica for medical treatment, you are responsible for your medical bills unless the injury or illness is deemed work-related.

Worker's Compensation. Any RPSC employee who is injured while in Antarctica may be covered under worker's compensation. Within three days of the accident (regardless of the seriousness), a Notice of Employee Injury Report must be completed by your supervisor or medical staff and turned in to the designated person at the station or vessel. If you feel you will need treatment after redeployment from Antarctica, you will need to contact Human Resources on station or in Denver prior to leaving Antarctica or vessel to establish a claim. If the injury can't be treated on station or on the vessel (determined by the station doctor), you may be sent off the continent/vessel to be evaluated by another doctor in Christchurch or Punta Arenas. Keep in mind that worker's compensation covers only injuries. Bodily malfunctions (i.e., appendicitis, kidney stones, medical conditions, etc.) are not covered by worker's compensation. Your insurance policy through RPSC or insurance through an outside carrier may cover these types of ailments.

NOTE: It is highly recommended that each employee carry some kind of medical insurance that will provide coverage while traveling out of the country after deployment. If you elected to enroll in the RPSC medical insurance, the COBRA program will be available upon completion of your contract. If benefits were not elected, COBRA will not be an option. Plan ahead.

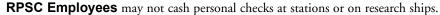
Cash, Meals, and Lodging in Antarctica

ATM machines are available at McMurdo Station, but not at the other facilities. There is a Finance Representative at all U.S. Antarctic Program stations who will cash the following instruments; U.S. money orders, travelers checks, certified checks, and cashier checks. Participants working on the research vessels should be aware that there is no Finance Representative aboard the ships and that they should plan ahead to ensure they have an adequate supply of cash.



At South Pole, transactions at the store can be made by cash, travelers checks or personal check (not to exceed \$500 per month). Personal checks may be written for cash, but they are not to exceed \$500 per month including any checks written to the station store.

At Palmer, transactions at the store can be made by cash, travelers checks, credit cards or personal checks (not to exceed \$500 per month). Personal checks may be written for cash, but they are not to exceed \$500 per month including any checks written to the station store.



At McMurdo, RPSC employees should rely on either the ATM machines or the Finance Representative to cash U.S. money orders, travelers checks, certified checks, and cashier checks.

At Palmer and South Pole Stations there is no ATM available. RPSC employees may obtain cash via a Remote Cash Disbursement (RCD). The employee selects the amount to be deducted from their pay after they reach Antarctica. These RCD funds are distributed at routine intervals while on station.

NOTE: Wintering personnel should arrange in advance to have enough cash at the end of the winter for use on the way home (see 'Personal Finances' in this chapter, for ways to pre-position cash in New Zealand).

NOTE: Subcontracted Technical Event personnel may not cash personal checks. They should plan ahead and bring a supply of travelers checks or cash.





ATM

- Available only at McMurdo Station.
- No fee charged by Wells Fargo, but your bank may charge a fee.
- Money is distributed in \$20 bills.

CREDIT CARDS

- Visa and Mastercard can be used at the McMurdo and Palmer stores, but not at the South Pole.
- Minimum \$10 purchase.

Meals and lodging. At U.S. Antarctic Program Stations, aboard the research ships *RIV Laurence M. Gould* and *RIV Nathaniel B. Palmer*, aboard a Coast Guard icebreaker, or in the field, you do not pay out of pocket for meals or lodging. If you are traveling with foreign expeditions, be prepared to pay meal charges aboard their ships.

RPSC Compensation and Benefits

RPSC payroll checks are **not** sent to Antarctica. All employees are required to have a U.S. bank account for the electronic direct deposit of payroll funds. RPSC employees should refer to the Terms of Agreement received in their Offer Letter Packet for detailed information about **travel funds**, **hours**, **your performance-based completion bonus**, **marine compensation**, **etc.**

In Antarctica, particularly at the inland stations and camps, there are essential employment conditions. The typical work week is Monday through Saturday, a 54 hour work week. At times everyone will be expected to work a longer than usual work week, assist others in the performance of their duties, and/or assume community-related job responsibilities. Everyone will do his or her share of the menial tasks, such as floor scrubbing, washroom cleanup, dishwashing, snow shoveling, etc. Due to the challenges that work in Antarctica presents, no guarantee can be made regarding the duties, location or duration of work. This is not an attempt to paint an overly bleak picture that will discourage all but the stout-hearted. Rather, it is an effort to present work and wages realistically. The objective is to support science, maintain the station, and see to the well-being of all station personnel. All are expected to work as long and

hard as necessary in obtaining this objective. At the same time, experience shows that good management and a cooperative spirit will result in ample time for social activities and the pursuit of personal hobbies and projects.

CHAPTER 3:

How and What to Pack



Storms move in quick at McMurdo Station, located on Ross Island, Antarctica.

There will be several stops on your journey to Antarctica. Various transportation providers (U.S., foreign, vessel, military) have differing baggage allowances and restrictions. Please adhere to the limitations set forth by each carrier. In New Zealand or Chile you will pick up Extreme Cold Weather (ECW) clothing. You may require personal items for the various climates, work, and activities. Planning and prioritizing are very important. Read this chapter carefully.

BAGGAGE ALLOWANCES

Commercial Carriers

You will travel from your airport of departure to Christchurch, New Zealand, or Punta Arenas, Chile, on commercial carriers. Following are **typical** commercial carrier baggage allowances.

Check-in baggage: up to two pieces weighing no more than 23 kg (50 lbs) per piece. Winter participants are automatically given an excess baggage coupon for the airline and are allowed three pieces. Checked baggage in excess of 23 kg (50 lbs) is not allowed by the airlines. Use the USAP cargo system for large/heavy baggage. Baggage allowances on flights from Christchurch to McMurdo differ from your commercial allowance.

Carry-on: one carry-on that must fit in the overhead bin, or under the seat in front of you. Linear dimensions are a maximum of 157 cm (62 inches) = width + length + depth.

NOTE: When you transfer to foreign airline carriers (e.g., QANTAS, Lan Chile) baggage limitations change. These limitations will be confirmed at the time your request is received. These limitations can vary from an allowance of two to three checked bags and range from a limitation of 7-23 kg (15-50 lbs) per piece. **Updates regarding travel are posted at www.usap.gov and should be consulted before departure.**

Flights From Christchurch to McMurdo Station

Summer Participants: up to 34 kg/75 lb of personal baggage.

Winter Participants: up to 66 kg/145 lb of personal baggage.

NOTE: Realize that the weight of the ECW gear issued to you in Christchurch will be counted as part of your baggage. Typically the ECW clothing weighs about 13 kg/30 lb. You are required to wear (or have on your person) the following items on the flight:

Balaclava Boots
Fleece jacket Fleece pants
Furback mittens Long underwear

Neck gaiterParkaWind pantsSunglassesWindproof mittensWool socks

The rest of the issued clothing (about 4 kg/10 lb) can be packed in your checked baggage.

DSG

Have a travel question? The Deployment Specialists Group has the latest travel information posted online at www.usap.gov. If you can't find the answer there, give them a call.

1.800.688.8606, prompt 2

Research Vessels and Palmer Station

There are no weight restrictions for personal baggage on the research vessels, although space is at a premium onboard.

Excess Baggage

If additional baggage is required, it is strongly recommended to use the USAP cargo system. If you must have the item with you, an approved Request for Excess Baggage Form (Form RPSC PA-A-100c) must be obtained from RPSC DSG. This form must be approved by RPSC prior to the time a deployment date is confirmed.

Any costs related to excess baggage will not be reimbursed without prior approval. Anyone reporting for embarkation with unauthorized excess or oversized articles (such as bicycles or skis) will be personally responsible for the costs

of excess baggage or storage if the items are refused by the airline. If such items are accepted by an airline and forwarded, you may be required to arrange for storage facilities. This applies to both northbound and southbound travel.

NOTE: Secured storage is available for items you will not need while in Antarctica (summer clothing, camping gear, etc.). See the end of this chapter.

NOTE: Requests and approvals for excess baggage must be made again for your return trip from McMurdo Station and on to your airport of departure. Approved requests for excess baggage are only one-way approvals.

NOTE: Excess baggage shipped to or from Antarctica through the cargo system is also subject to inspection for customs violations, government property, and narcotics.

NOTE: Individuals are responsible for insuring their goods against loss.

Personal Baggage Insurance

Baggage insurance is provided if RPSC issues your airline tickets. If a claim needs to be processed, contact the DSG. Loss protection is limited and supplemental personal property insurance is suggested.

Loss protection is not provided for other than during commercial flight segments. Should a loss occur during transit to/from the airport, while in a hotel, during your stay in Antarctica, etc., it is the participant's responsibility to retain personal property insurance coverage.

Mailing Personal Packages

If you need to take more than 34 kg/75 lb of baggage to McMurdo or South Pole Stations, you can mail boxes to yourself at the **Air Post Office (APO)** address in Antarctica. The APO addresses are listed in Chapter 6. You should be aware, however, that NSF priorities dictate that all science cargo and flat mail take priority over any personal packages. Your personal packages may be

substantially delayed.

Once you are in Antarctica you can have mail sent to you. However, the Air Post Office (APO) in Christchurch will not accept packages for shipment unless they are received via the Postal Service. This means you cannot order items via the Internet from Antarctica for courier delivery (i.e., FedEx) to the APO. The Post Office will not accept such deliveries.

Near the end of the season many program participants realize that they've accumulated more than they will be allowed to have with them on their flight north. This excess must be sent in the mail. It is important to pay attention to announcements about mailing deadlines and procedures for mailing personal packages from Antarctica. The timelines and options differ according to the station and the time of year.

APO Privileges

Upon your arrival in Christchurch, the RPSC representative will give you a card that entitles you to use the APO facility. This benefit provides a tremendous cost savings if you need to mail boxes to the U.S. from New Zealand. The card is good for only 10 days from your arrival in Christchurch. Any mail received by the APO after the valid 10 day period, will be returned to sender.

Unwanted in Antarctica!

Waste management procedures and this law affect what you take to Antarctica. Use this list when packing, and share it with those who may mail you packages.

PROHIBITED

Polystyrene packing. These beads, chips, and peanuts pose athreat to wildlife.

House plants and non-sterile soil. Introduction of non-indigenous species (except food) is prohibited.

Hazardous and toxic substances. Many common consumer products are on this very long list.

DISCOURAGED

Aerosols. Pressurized containers of deodorant, hair spray, and shaving cream. These items become hazardous waste because of their ingredients or because they are pressurized.

Non-reusable plastic containers; such as shampoo and lotion bottles and film cans. Buy single containers large enough to meet your needs or repack items in reusable containers. Take extras and empties back home with you.

Dry cell batteries such as mercury, alkaline, and lithium cells. Buy recharge ables and a recharger. Try to select devices that use a common battery size.

Magazines, catalogs, newspapers, and junk mail. The library has reading matter, and news and sports are available on TV and the computer net. Do not forward your mail to Antarctica.

Small appliances. If you must bring them, mail or carry them out when you leave. Hot plates are forbidden.

OTHER RECOMMENDATIONS

Buy biodegradable spaps and shampoos.

Buy pump sprays, sticks (deodorant) and tubes (shaving cream), not aero sol containers.

Repack your personal products. Camping out fitters sell various containers. Ziplock bags are good for aspirin, vitamins, and prescription drugs (keep the labels).

Cushion items in whole (not shredded) new spaper or clothing. Reuse boxes and packing you receive in the mail.

Take all your belongings with you when you.
Leave.

Participate in the waste management segregation and recycling program. Suggest new ideas for waste reduction.

National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230

APO service is **not available for Palmer Station** participants. See Chapter 6 for instructions on mailing boxes and flat mail to Palmer Station and the research vessels.

HOW TO PACK

Personal comfort in Antarctica is important. So is environmental protection. When choosing items to make your stay more comfortable, buy and take with you items that are as environmentally friendly as possible. Try to use biodegradable soaps and shampoos, which will have less impact on the local environment. You need not do without little luxuries in Antarctica as long as you take the time to select items with the least environmental impact and package them frugally.

Eliminate the use of aerosols. The propellants in some aerosols can deplete the ozone layer, and aerosol cans create a disposal problem. Find substitutes for aerosols such as roll-on deodorants, shaving creams in a tube, and other non-aerosol products.

Eliminate as many plastic and throwaway containers as possible. This will help reduce the volume of solid waste disposal in Antarctica. Repackage products that come in throwaway containers into containers you are more apt to take home with you. If possible, use the backpacker's rule—pack it in, pack it out. Please cooperate with the established recycling program.

Share the "Unwanted in Antarctica" list with friends and family who may be mailing you packages.

WHAT TO PACK

Below is a brief narrative and list of some items you may be considering for your personal list of what to pack. The items listed are meant as a guide only, and should be adjusted to individual needs and preferences. Wintering personnel, for example, should increase the quantities, while official visitors and others who are scheduled for only a few days in Antarctica will require less.

Your point-of-contact can give you specific advice about what you might need depending on

Personal Items To Consider Taking

CLOTHING ITEMS:

Boots or shoes: work, climbing, hiking, insulated as needed for your work Glasses; eye and sun, extra pair, record of prescription Gym clothes and shoes for athletics Jacket; pile and windbreaker **Pajamas** Pants; cotton, denim Shirts; light wool or cotton flannel, long-sleeve (machine washable) Slippers or soft shoes for indoor wear Sock liners; polypropylene or Thermax

Socks; cotton and wool

Swimsuit (for sauna)

Towel and washcloth

Underwear

Sweaters; heavy and light

MISCELLANEOUS:

Alarm Clock Batteries; rechargable is best Camera/Camera batteries Day pack Hair Dryer Hobby, craft items (small) Holiday attire Laundry bag Lock, combination or key Prescription medications Sewing kit Skis; skate/cross country Small sentimental items Tape/CD player Toilet articles; sunblock, toothpaste, dental floss, soap, comb, razor, shave cream, deodorant, cosmetics, skin lotion, tampons, a carrying case

your length of stay and the antarctic facility at which you reside.

There may be some special or brand name products, such as vitamins, your favorite cold remedy, aspirin, and/or toiletries that you may require during your antarctic assignment. The Station Store at each facility carries a limited supply of toiletries, gift items, film, batteries, snacks, pop, etc. Your supervisor or team leader can give you a good idea of what items are stocked in the store at the station or ship where you will be working. Planning on purchasing items from the Station Store during your stay will help reduce the amount you have to pack in to Antarctica.

Toilet articles. Antarctica is very dry and it is recommended that you use hand lotion and lip balm. The Station Store carries a limited selection of these items along with other toiletries. There is no Station Store aboard the research ships.

Prescription medications. Make sure you have enough prescription medication to last the length of your stay, including any travel time. The medical facility **cannot** refill prescription medication. Most health plans only allow one month of medication refills at a time. Human Resources at RPSC can assist you in coordinating with your health insurance and will help you obtain sufficient quantities of your pre-

scription to last your entire deployment and travel. Remember that customs regulations require that prescription drugs be hand-carried (not placed in checked baggage) and that the labels be intact.

STATION STORE

Each Station Store normally carries the following items. This list can vary slightly due to the remoteness of the stations and fluctuating supply and demand. Snacks, drinks, souvenirs and other items are also sold.

Baby Oil **Body Soap** Combs **Dental Floss** Deodorants Eye Care Solution, Multi Purpose **Eyeglass Repair** Kits **Facial Tissue**

Feminine Hygiene **Pads** Hair Brushes **Hair Conditioners** Lip Balms Lotions Mouth Wash **Nail Clippers** Powder, Talcum

Razors

Shampoo **Shaving Cream** (non-aerosol) Tampons **Toothbrushes Toothpaste Tweezers**

Sewing Kits Sunscreen SPF 30

> **Special clothing** (climbing boots, cold-weather gear, etc.). If you are experienced in antarctic or cold weather conditions, you may add your own cold weather gear for field use. Grantees may

Pain relievers such as aspirin and cold capsules (non-prescrip-

tion) are usually available for purchase at Station Stores. Quantities and brand names are unpredictable however, and it is suggested

that you bring your preferred pain relievers to Antarctica. Also, if

regular indoor clothing, including underwear, socks, shirts, and

pants. Washable clothing is recommended, and dry cleaning is not

available. The use of polyester double knit fabric is not recom-

mended as it is not sufficiently warm. Base the quantity of cloth-

ing you bring on recommendations from your point-of-contact,

the length of stay in Antarctica and the type of work you will be

Indoor clothing choices are up to you. You bring your own

you re-pack them to conserve space, retain their original labels.

request, through their NSF program manager, funding for additional clothing that is not part of the standard ECW clothing issue.

Sheets. The U.S. Antarctic Program does supply linens, pillows and blankets for the beds.

doing.

Laundry. Washing machines and dryers are conveniently located and are free to use. Laundry detergent is also provided free.

Layering. The temperature both inside buildings and outside can vary dramatically. The best way to manage these changes is by layering your clothing. This will allow you to shed or add layers quickly and easily. Several thin layers are more effective than one bulky layer.

Electric power. Power in Argentina, Chile, and New Zealand is 230 volts, 50 hertz. Not all hotels in these countries have converters for U.S. electrical appliances, which operate at 110-120 volts. Bring your own converters and plug adapters for appliances, such as hair dryers. Research vessels and U.S. Coast Guard ships have both 220- and 110-volt power. U.S. antarctic stations use 110-volt systems.

Semi-formal attire (a coat and tie or a skirt/dress) is suggested if you expect to attend formal functions, holiday parties, meetings, or evening meals in New Zealand, South America, at McMurdo Station, and aboard some ships. Ask your point-of-contact.

Feminine hygiene supplies are available at the Station Store. Brand selection is limited, but necessary supplies are normally available. Women may wish to bring items and brands they prefer.

Towels and washcloths. The U.S. Antarctic Program does not provide towels and washcloths in Antarctica, although it does provide towels on R/V Laurence M. Gould and R/V Nathaniel B. Palmer. Also, many hotels in New Zealand and South America do not provide washcloths. It is recommended that a small towel and washcloth be part of your hand carry.

Sunscreen. Carry and use a sunscreen with an SPF number of 15 or greater (range 2 - 50). Ensure that it provides both UVA and UVB coverage and that the product expiration date does not occur during your stay. In summer the sun is up 24 hours a day, and its reflection off snow and ice multiplies the potential for sunburn.

Sunglasses. Sunglasses or goggles are critical. Depending on your job description, your ECW clothing issue may include ski-type UV protective goggles, and/or sunglasses. Although nonpolarized/non-prescription sunglasses will be part of your clothing issue, everyone is strongly encouraged to bring 2 pair of their own sunglasses. Make sure they provide 100% UV protection. Frames should be plastic, rather than metal, to avoid freezing to the skin. Consider wrap-around temples, side shields, nose guards, or other features to protect from harsh sunlight and reflections off the snow that may go around your dark lenses. If you wear prescription glasses, then you



should also bring prescription sunglasses. The same features are recommended. Eye protection is your responsibility.

RPSC Employees will be reimbursed up to \$175 for prescription sunglasses every other year. **Prescription eyeglasses and contact lenses.** If you wear glasses, carry a record of your prescription to Antarctica. You should take a spare pair with you. The cost of eyewear replacement is your responsibility and the means to obtain replacements is limited. It is also suggested that you carry contact lenses on your person to avoid possible damage from freezing.

Contact lenses have been found to work fine in the Antarctic. Lens cleaning supplies are available at the Station Store at McMurdo in limited quantities and brands. Regular saline and sensitive saline solutions for soft contact lenses are available. Heat type solution is not available. You may wish to bring enough personally desired items to last your entire stay.

Recreation gear (skis, bikes, musical instruments, etc.). The variety and availability is different at each facility. You may wish to send your own recreational gear depending on the facility and your length of stay. Your point-of-contact can give you specific information.

CD/cassette player. Antarctic stations rely primarily on CDs and cassettes for music. Blank tapes and some CDs are normally stocked at the Station Store. You may want to take some of your favorite music with you.

Attire en route. While dress may be informal en route to and in both New Zealand and South America, you are requested to remember that in your own way you are representing the United States, the National Science Foundation and your research institution, and that your appearance (and conduct) will be noted. Avoid inappropriate conduct during travel.

New Zealand. Weather conditions change rapidly. Cold temperatures and rain can be expected even during the spring and summer months. Lightweight rain gear, as well as a warm sweater or jacket, are recommended.

Chile. The climate in Chile is changeable and can be quite cold especially in Punta Arenas. Lightweight rain gear plus a warm sweater or jacket are recommended.

Strict regulations regarding proper attire (extreme cold-weather clothing) on flights and cruises to and from Antarctica will be explained during clothing issue in Christchurch or Punta Arenas.

Antarctic clothing. You will be issued extreme cold weather (ECW) clothing as you pass through New Zealand or Punta Arenas. Special arrangements will be made if you are taking other routes to Antarctica. This clothing will include outer garments necessary for warmth and dryness, pile jackets and pants, gloves, thermal boots, insulated underwear, and other items. Depending on your work, you may also be issued special safety gear (hard hats, gloves, goggles, etc.).

Proper clothing fit and functionality are important to achieve maximum protection. You should check each individual item to ensure that it fits correctly, that the zippers work, and quantities are correct. If you expect to gain weight while in Antarctica, which is common, select clothing that fits loosely.

The clothing issued to you is U.S. Government property. You are required to return it in New Zealand or South America during redeployment, even if you think it may be of no further use. You are responsible for maintenance of issued clothing in your possession. Some issued clothing, especially parkas, is subject to theft, and you should take care to prevent loss. Abnormal damages or unreported loss of clothing will result in your being billed for repair or replacement costs. Report immediately the theft of any U.S. Government property to the NSF Representative, Antarctica, or the Station Manager. It is illegal for you to mail government property from Antarctica.

It is illegal for individuals to buy or sell government property, including clothing.

NOTE: Understand that while the U.S. Antarctic Program will provide you with what you need for outdoor clothing, participants may bring their own long underwear, heavy socks, etc. to wear if they prefer, when not in flight. Ask your point-of-contact for more information.

What Not To Pack

Plants, seeds, and animals. The Antarctic Treaty, which all participants must adhere to, prohibits the importation of any seeds, plants (except food plants under controlled conditions for use in the greenhouse), or animals to Antarctica. Additionally prohibited is the removal of any materials such as wood, bone, eggshells, feathers, and plant or animal parts, unless specifically authorized by permit issued from the NSF.

Commercial or other business activities. You may not market or sell clothing or finished articles printed, manufactured, or assembled outside Antarctica. You may not import materials to finish and market such items locally. Federal law forbids the use of an APO address for the shipment of articles or materials used in private resale operations. The U.S. Antarctic Program also prohibits use of government transportation for shipment of goods and materials for unauthorized personal business activities.

Hazardous Materials. Explosive gases, flammables, oxidizers, poisons, radioactive material, corrosives and other hazardous materials may not be shipped as baggage or mail. See Chapter 4: Science Cargo.

Baggage Organization and Labeling

Your personal belongings and ECW clothing will normally be carried from Christchurch to McMurdo in two orange bags issued to you as part of your ECW gear in Christchurch. You can also take your own suitcases or bags as long as the total weight of all bags combined does not exceed the established limits or you have authorization in advance for excess baggage (see the beginning of this chapter). One of your orange bags, plus your additional suitcases/bags, will be placed in the hold cargo area of the airplane and will not be available during the flight.

Your second orange bag will be a carry-on bag, and should consist of some ECW clothing (see Chapter 5), a change of clothes, and toilet articles to use in the event of a delay. Your carry-on bag will probably not be available to you during the flight. The air crew often collects the carry-on bags and straps them down in one pile to accommodate space/weight/balance restrictions. For this reason, it's a good idea to extract anything you may need during the flight (gloves, dark glasses, books, snacks, lip balm, water bottle, etc.) and place them in the pockets of your parka.

The size of your carry-on bag, which must not exceed 61x38x23 centimeters (24x15x9 inches), will be inspected as you check in at the Antarctic Passenger Terminal.

Laptops are accepted as hand-carry in addition to the normal hand-carry bag. The Air Force loadmaster has the final say in baggage and cargo loading in military aircraft. You may not bring sharp objects aboard planes: if you are bringing a pocket knife, scissors, or other sharp objects, stow them in your checked baggage. Your baggage will be inspected and may be reviewed using various measures including a drug detection dog.

If you are traveling to Antarctica on a research vessel, the amount of baggage you will have access to can be very limited. You should pack the items you'll need for the five day ocean journey in a small piece of luggage. Any baggage you store in the cargo area will be inaccessible during the journey.

Mark all your bags, including those you carry aboard, clearly with tags. Also place identification inside each bag. Do not lock your luggage as airline security may need access to it. Mark boxes with a stencilled or painted address. Include your assigned antarctic station, the initials "U.S. Antarctic Program," "RPSC" or event number, and return address. If you are using boxes previously shipped to Antarctica, please take special care to eliminate any old cargo markings or placards.

Any **Do Not Freeze (DNF)** equipment should not be included in your checked or hand-carry baggage. Use the U.S. Antarctic Program Cargo system to protect it from freezing (see Cargo, chapter 4).

Other Personal Equipment. Personal baggage may also include delicate scientific instruments that must be hand-carried. You are responsible for handling personal baggage throughout the trip to and from Antarctica, unless it is checked as air cargo. If delicate instruments are to be

moved as air cargo, clearly mark any handling requirements on the container. Handling personal baggage includes customs clearances in New Zealand, Chile, and the U.S. when returning from Antarctica. Pack baggage securely in easily handled containers.

STORAGE AVAILABILITY

In New Zealand

There is a limited amount of storage space available at the U.S. Antarctic Program Clothing Distribution Center (CDC) in Christchurch to leave items not needed in Antarctica. Some examples of items you might leave behind are summer clothing, business suits, street shoes, backpacking equipment, books that you have finished reading, and souvenirs acquired on the trip south to New Zealand.

This service is not provided solely for your personal benefit. It reduces the amount of materials airlifted to and from Antarctica, freeing capacity for timely movement of needed U.S. Antarctic Program materials, possibly including yours.

There will not be much time to spend sorting through your baggage before checking in for your flight to McMurdo Station. Plan ahead and organize your baggage and any items for storage in advance.

U.S. Antarctic Program participants who wish to use their personal dive equipment, bicycles, or camping gear while in New Zealand, may mail the items to themselves in care of the CDC. These items should not be mailed more than 60 days prior to your arrival in Christchurch. Items received after your departure to Antarctica will be held in the CDC warehouse secured baggage storage room until you redeploy from Antarctica. You will have access to this service for the duration of the time indicated on your privilege card for APO services (see page 59). After that time has expired, or if determined you are no longer an active participant, the article(s) will be returned or forwarded, if a forwarding address is available. The address is as follows:

[your name; project # or RPSC] c/o NSF Contractor Representative PSC 467 Box 296 APO AP 96531-1034 HOLD IN CHRISTCHURCH

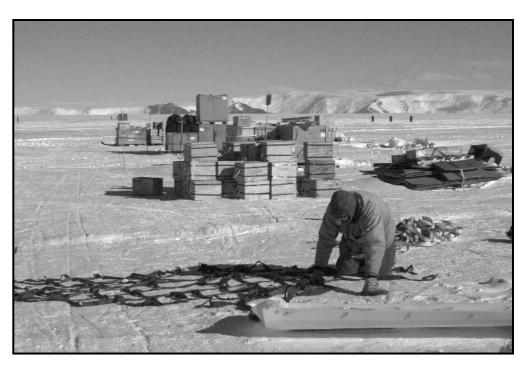
The New Zealand Ministry of Agriculture and Forestry (MAF) is now assessing a fee (average NZ\$7) to clean/fumigate items (i.e., dirty hiking boots, tent poles, etc.) left in Christchurch while you are in Antarctica. These items will remain in MAF custody at the U.S. Post Office in Christchurch until arrangement has been made to pay the fee.

In Chile

Limited secure storage space is available in Punta Arenas for participants to store items they do not want to take to Antarctica, such as clothing to be used after leaving Antarctica and science equipment used in multi-year projects. Coordinate with AGUNSA officials upon arrival in Punta Arenas to have items stored.

CHAPTER 4:

Conservation, Permits, and Science Cargo



Stacks of wooden boxes filled with fossils and geological samples get ready to be loaded into a cargo net for transport.

Environmental conservation and waste management law applies in the Antarctic. This chapter describes the public law and explains how to get a permit for activities allowed under permit.

The law applies to everyone in the U.S. Antarctic Program—even if you are not a U.S. citizen. It applies to every U.S. citizen—even if you are working with another nation in the Antarctic. It applies to all expeditions to Antarctica that originate from the United States. The import-export part of the law applies to U.S. citizens not in Antarctica, including tourists.

The chapter also discusses the shipment of science cargo, and it explains the permitting rules that apply to cargo—including specimens shipped from the Antarctic.

ANTARCTIC CONSERVATION ACT

The Antarctic Conservation Act (Public Law 95-541) formalizes U.S. adherence to Antarctic Treaty conservation rules, including the 1964 Agreed Measures for the Conservation of Antarctic Fauna and Flora, the 1991 Protocol on Environmental Protection, and the Antarctic Science, Tourism and Conservation Act of 1996.

The law provides penalties of up to \$11,000 and 1 year imprisonment for each violation. Other penalties could include removal from Antarctica, rescission of a grant, or sanctions by your employer. It assigns the National Science Foundation and other agencies regulatory, permit, and enforcement authority.

The Antarctic Conservation Act requires your involvement from the time you begin planning your trip until after you leave Antarctica. Your activities, on the job or off, must comply with the Antarctic Conservation Act. Much of your conservation planning will involve common sense—minimizing pollution, avoiding interference with animals—but the Act is complex, and you cannot rely on unassisted common sense.



Antarctic Conservation Act of 1978 (NSF 01-151). This book contains the law, its regulations, maps of special areas, the Protocol on Environmental Protection and a permit application form. Read more about the Antarctic Conservation Act on the NSF web site at www.nsf.gov and conduct a search for "ACA."

Highlights of the Antarctic Conservation Act

Environmental Impact Assessment. Proposed activities shall be subject to environmental assessment of impacts of those activities on the antarctic environment, or on dependent or associated ecosystems.

If an activity has less than a minor or transitory impact, the activity may proceed. Otherwise, an environmental assessment must be completed, according to Annex 1 of the Protocol on Environmental Protection to the Antarctic Treaty. Parties planning the activity are responsible to ensure that the assessment procedures set out in Annex 1 are applied in the planning processes leading to decisions about any activities undertaken in the Antarctic Treaty area. An Initial Environmental Evaluation, or a Comprehensive Environmental Evaluation, of the activity may be required and must be signed by the National Science Foundation before the activity can begin.

Taking or harmful interference are prohibited except under a permit that specifies the authorized activity, including when, where, and by whom it is to be conducted. Permits are issued only to provide specimens for scientific study or for museums or other educational institutions. NSF evaluates requests for permits and issues them when approved.

"Taking" means—

• to kill, injure, capture, handle, or molest a native mammal or bird, or to remove or damage such quantities of native plants that their local distribution or abundance would be significantly affected.

"Harmful interference" means—

- i. flying or landing helicopters or other aircraft in a manner that disturbs concentrations of birds and seals
- ii. using vehicles or vessels, including hovercraft and small boats, in a manner that disturbs concentrations of birds and seals
- iii. using explosives or firearms in a manner that disturbs concentrations of birds and seals
- iv. willfully disturbing breeding or molting birds or concentrations of birds and seals by persons on foot
- v. significantly damaging concentrations of native terrestrial plants by landing aircraft, driving vehicles, walking on them, or by other means
- vi. any activity that results in the significant adverse modification of habitats of any species or population of native mammal, bird, plant, or invertebrate

Special areas. A number of precisely defined places in Antarctica are designated under the Antarctic Treaty, and in the U.S. law, as Antarctic Specially Protected Areas (ASPAs), formerly referred to as SPAs and SSSIs. You must have a compelling need to enter one of these areas, and you must have a permit to do so.

Some of these special areas are near stations, such as Arrival Heights next to McMurdo or Litchfield Island near Palmer. Other special areas like the Barwick Valley are in remote locations in which geologists, for example, may need to work. The areas and their management plans, with which you must comply if you are permitted to enter, are described in the publication *Antarctic Conservation Act of 1978* (NSF 01-151), free from NSF and on the web site listed above.

An additional category, Antarctic Specially Managed Areas (ASMAs), may be created for areas where activities pose risks of mutual interference or cumulative environmental impacts, and for sites of recognized historic value that do not require strictly controlled access. Entry into an ASMA will not require a permit.

Introducing species. You need a permit to introduce nonindigenous species to the Antarctic (that is, south of 60°S latitude). A clear need to introduce the items must be demonstrated. Only

Do Not Disturb Wildlife.

If they are reacting to you, then you are too close.

If you try to maneuver a Weddell seal into position for a photograph, you are breaking the law.

You must have a permit to enter a special area.

the following may be considered for a permit allowing their introduction:

- a) domestic plants
- b) laboratory animals and plants including viruses, bacteria, yeasts, and fungi

The Act allows food plants, but introduced soil must be sterile. Many antarctic stations have hydroponic vegetable gardens.

Living nonindigenous species of birds may not be introduced into Antarctica. Section 670.18 of the Antarctic Conservation Act lists antarctic native birds.

If you are uncertain if the species you need to take to Antarctica would be an introduced species, contact the Antarctic Biology and Medicine Program Officer at the Office of Polar Programs, NSF (nkennedy@nsf.gov).

Import into and export from the U.S. In the United States it is unlawful, unless authorized by regulation or permit, to have or sell, or to import or export, antarctic plants, antarctic mammals, or antarctic birds. An application for a permit must demonstrate that the import or export would further the purposes for which the species was taken or collected, demonstrate that the import or export is consistent with the purposes of the Antarctic Conservation Act, and state which U.S. port will be used.

Mailing items to or from the United States constitutes import or export.

Banned substances. The Antarctic Conservation Act waste management regulations bans these substances from Antarctica:

- pesticides (except those required for science or hygiene: a permit is needed)
- polychlorinated biphenyls (PCBs)
- nonsterile soil
- polystyrene beads and plastic chips

REPORT ALL SPILLS

- ▶ You are required to report any spill that takes place, no matter how small.
- If you can safely clean it up yourself, do so, but still report it.
- In McMurdo, call the Fire House at 2550 for non-emergencies or 911 for an emergency.
- At the South Pole, contact the EHS coordinator.
- ▶ If you accidentally spill, you won't be legally prosecuted, but if you don't report it you could be.

Designated pollutants. The Act identifies some substances as designated pollutants that must be used, stored, and disposed of in a way that prevents their release to or adverse impact on the environment.

This category is large and requires attention both when you pack for travel to Antarctica and at your work site and living area. When packing, think about how to minimize the types and amounts of substances you need, to substitute benign substances for designated pollutants wherever possible, and to handle the designated pollutants that you must take.

Designated pollutants include any substance listed by name or characteristic (flammable, corrosive, reactive, toxic) in the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, and other U.S. regulations. Waste containing designated pollutants is antarctic hazardous waste, and it has to be used, stored, and disposed of in controlled ways.

Many research and industrial supplies—and common substances like lighter fluid and fingernail polish remover—at U.S. antarctic stations are designated pollutants. All of them must have a permit to enter Antarctica. The support contractor annually completes the actions needed to request a permit; the task requires the cooperation of all pro-

gram participants. This chore and others are part of the work involved in preparing for Antarctica.

Historic sites. More than 70 historic monuments or sites have been identified during Antarctic Treaty consultative meetings. Appendix C lists them. Steps are taken to restore and preserve monuments including tombs, buildings, and objects of historic interest. The concerned governments protect these sites from damage. If you go near historic sites, please take care not to damage or disturb them.

McMurdo has four Antarctic Treaty historic sites: Observation Hill, Scott's Hut, Vince's Cross,

NSF will not allow work in
Antarctica until a permit has been either approved or found not to be required... copies of ACA permits must be on file at NSF.

and the Richard E. Byrd Memorial. Two other monuments are accorded historic status by the U.S. Antarctic Program: Our Lady of the Snows Shrine, which was established in memory of Richard Thomas Williams, a Navy Seabee who drowned when his tractor broke through the sea ice in January 1956, and the Raymond Smith Monument, which commemorates BM1 Raymond Thomas Smith, USN, who died in 1982 during an unloading accident at McMurdo onboard USNS Southern Cross.

South Pole has one Antarctic Treaty historic site: Flag Mast, which was erected in 1956 and has not been seen for many years. Its exact location is not known.

Capes Royds, Evans, and Adare contain historic huts or their remains. Respect the basic rule prohibiting the removal or disturbance of any materials from these sites, for either souvenir or scientific purposes.

Enforcement officers. Antarctic Conservation Act Enforcement Officers are federal officials responsible for ensuring compliance with the Antarctic Conservation Act and for permits issued to U.S. citizens or foreign nationals in the U.S.

Enforcement Officers help U.S. Antarctic Program participants understand their obligations to protect native plants and animals and to prevent the release of pollutants.

They are authorized to review permits to ensure terms and conditions are fulfilled; serve warrants; search and seize property without warrant; take affidavit; detain for inspection and inspect packages, crates, or other containers; and make an arrest with or without a warrant.

GETTING ACA PERMITS AND REPORTING

NSF will not allow work in Antarctica until a permit has been either approved or found not to be required. You may not do things that require a permit unless you have a permit. A permit cannot be retroactive.

You are the person who initially decides whether or not an Antarctic Conservation Act (ACA) permit will be needed for proposed activities in Antarctica. If there is any doubt, contact the Office of Polar Programs Permit Office (Nadene Kennedy, nkennedy@nsf.gov).

Permit Officer
Office of Polar Programs, Room 755
National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230
703-292-9080 fax

Normally, at least 65 days are required for NSF to review and decide on an ACA permit. During that time, a summary of the application is published in the Federal Register so that the public can comment. The Foundation evaluates public comments and performs an internal review. It then approves the application, approves it with modifications, or disapproves it.

Postseason report. At the end of the season, write a 1-page report of activities conducted under your ACA permit and submit it to the Permit Officer, Office of Polar Programs. If you collected birds or mammals, complete an "Annual return of species killed or captured" form available from the Permit Officer.

NOTE: If your project involves any native mammal that is a marine mammal as defined by the Marine Mammal Protection Act of 1972 (16 U.S.C. 1362(5)), any species that is an endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), or any native bird that is protected under the Migratory Act (16 U.S.C. 701 et seq.), you may need to obtain permits from other Federal agencies. NSF cannot issue an Antarctic Conservation Act permit until the Permit Office receives copies of valid permits issued under these regulations. The following website provides information on the acts listed above: http://www.nmfs.noaa.gov/prot_res/overview/permits.html.

OTHER IMPORT-EXPORT REGULATIONS U.S. & FOREIGN

Federal laws and regulations control the taking and importing into the U.S. of certain biological specimens, alive or dead. Other countries have rules for crossing their borders with some materials.

Responsibility for knowing these regulations, complying with restrictions, and obtaining clearances rests with the grantee. Keep your RPSC Science Support point-of-contact informed by sending copies of relevant correspondence, of action taken and permits granted.

The NSF Representative, Antarctica, cannot provide the needed clearances from the field. It is your responsibility to obtain the necessary permits.

Import of animal-origin materials. The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), regulates the import of all animal-origin materials that could be a disease risk to U.S. livestock. Animal-origin materials include animal products, animal byproducts, and biological materials that contain or have been in contact with materials of animal origin (including cell cultures).

You may not bring such materials into the country without a permit. Permits may be requested on VS Form 16-3, "Application to Import Controlled Material or Organisms and Vectors." If you want to import cell cultures, you also need VS Form 16-7, "Additional Information for Cell Cultures and their Products." Forms can be obtained from the address below. A copy of the forms you submit should be sent to your RPSC Science Support point-of-contact.

USDA, APHIS, VS

Import-Export Products Staff

Room 756, Federal Building 301-927-8357 (tel.) 6505 Belcrest Road 301-436-8695 (tel.) Hyattsville, Maryland 20782 301-436-8226 (fax)

User fees apply for the following services:

Process application forms VS 16-3 and VS 16-7	\$26.50
Renewal of permit	\$14.50
Amendment of permit	\$11.00
Release assistance from agricultural hold	\$22.75

Payment may be by cash, check, money order, credit card (Visa or MasterCard), or user fee credit account. To establish a credit account call the USDA, Field Servicing Office, Minneapolis, Minnesota, 612-370-2075, for an application.

Foreign permit restrictions. All countries have some restrictions against the importation of harmful plants or animals or of soil samples that might contain harmful seeds, insects, fungi, or bacteria. New Zealand has particularly stringent regulations (see below), and Argentina and Chile have similar rules. Chile does not currently restrict transshipment of specimens or technical equipment. For general information about materials sent by mail or shipped as retrograde cargo to the U.S., contact the embassies of the respective countries for information and permit applications before you leave the U.S. Otherwise, there may be difficulty in clearing customs, particularly when hand carrying biological samples.

For information, write to the representative of the country through which you or the specimens will pass:

Ministry of Agriculture and Forestry P.O. Box 2526 Wellington, New Zealand Chilean Embassy 1736 Massachusetts Avenue, N.W. Washington, D.C. 20036 Argentine Embassy 1600 New Hampshire Avenue, N.W. Washington, D.C. 20009 To keep the National Science Foundation informed of your action, please forward information copies of correspondence to your RPSC Science Support point-of-contact.

New Zealand health and agricultural requirements. New Zealand has strict regulations regarding importation of biological and other materials. A *Permit to Import* or a *Permit to Transship* is essential for entry of biological samples and other materials into New Zealand - from either the U.S. or Antarctica. By entering permit information into POLAR ICE (the online application submitted by scientists), an application to the New Zealand Ministry of Agriculture and Forestry (MAF) is automatically generated. The participant must print this application and fax it to the Christchurch office of Raytheon Polar Services (NZ), Ltd. Fax to: 011.643.358.9060, Attention: Admin. Coordinator Senior. The application form is processed and a *Permit to Import* or *Permit to Transship* is issued and sent to the participant. Applications that miss the cut off date for POLAR ICE must be processed as described below.

Apply for all permits at least **8 weeks** before you leave the U.S. for Antarctica. All permits may be used for one entry only and only by the person to whom the permit was issued. Thus each team member expecting to transport materials to or through New Zealand should make a separate application. Application forms can be obtained through your RPSC Science Support point-of-contact and are included in the Support Information Package (SIP).

A *Permit to Import* any of the following items into New Zealand from the U.S. en route to Antarctica must be obtained before your departure from the U.S. (Form A): human tissue; animal tissue, parts, or byproducts; vaccines or cultures; restricted drugs or chemicals; plants or plant byproducts; insects; mites; or seeds. A *Permit to Import* biological samples and all other materials into New Zealand from Antarctica (terminating in New Zealand) must be obtained before your departure from the U.S. (form B).

A *Permit to Transship* biological samples and all other materials from Antarctica through New Zealand en route to your ultimate destination must be obtained before your departure from the U.S. (Form C). All completed application forms for importation or transshipment should be addressed to:

Admin. Coordinator Senior c/o US Air Post Office Private Bag 4747 Christchurch, New Zealand MAFpermit@iac.org.nz

If the request is approved, a *Permit to Import* or *Permit to Transship* will be sent by the NSF Contractor Representative, New Zealand. This original documentation must be in your possession at the point of entry into New Zealand (or attached to the #1 box containing your samples). You will need to produce the permit to the MAF border officials who will issue a Biosecurity Authorization/Clearance certificate which stipulates the terms of the sample's entry/transshipment through New Zealand.

Requests for importation relating to human health should be addressed to:

Director General Ministry of Health P.O. Box 5013 Wellington, New Zealand

Shipping biological materials from Antarctica. To assure the satisfactory and safe shipment of biological specimens from Antarctica, give details of the shipment in writing to Crary Laboratory and Science Cargo Staff if you are working out of McMurdo Station. If you are working in the Antarctic Peninsula area, get transport details from the NSF Representative Antarctic Peninsula, the RPSC Resident Manager at Palmer, or the Marine Projects Coordinator on your research vessel.

You will be required to identify the container as to content, relevant permits, special handling requirements (such as dry ice), and addressees. State whether the container will be hand carried or shipped independent of the investigator.

Radioactive Materials

Use of radioactive materials in Antarctica requires strict adherence to U.S. Antarctic policies and procedures to avoid contaminating the antarctic environment and to ensure safety. Approval by the NSF/OPP to use radioisotopes in the Antarctic must be obtained before any radioactive material is shipped south. Principal Investigators must request this permission through the Support Information Package (SIP) or by contacting their RPSC point-of-contact. Failure to do so may result in delay of shipment receipts for the project or in return of the shipment to the vendor or home institution. In addition, the Antarctic Treaty prohibits the disposal of radioactive waste in Antarctica. The Marine Protection Research and Sanctuaries Act (the "Ocean Dumping" act) prohibits disposal of radioactive materials in the ocean unless authorized by EPA permit.

Responsibility for the use of radioactive materials in Antarctica rests with the principal investigator. This responsibility cannot be delegated. Improper use, control, or documentation by anyone in the investigator's project will jeopardize the investigator's future use of isotopes in the Antarctic. Procurement and shipment of isotopes is the responsibility of the principal investigator through a university license. The university's Radiation Safety Officer is required to document that those using isotopes are included on the license. RPSC monitors procurement of the radioactive materials so that it can assist in assuring proper shipping methods. Hand carriage of radioactive materials to and from Antarctica is not allowed.

On arrival in Antarctica, isotopes are stored under the control of the Laboratory Manager or the Marine Projects Coordinator except when in actual use. The U.S. Antarctic Program has established a mechanism for proper disposal of low-level radioactive waste generated in Antarctica and will provide the home institution's radiation safety office documentation to that effect.

Shipping radioisotopes through New Zealand. Radioactive isotopes cannot be shipped to New Zealand without a Certificate of Authorization to Import Radioactive Materials. The NSF Contractor Representative, New Zealand, is not an approved agency to obtain this certificate. An RPSC agent in Auckland, Nuclear Supplies, Ltd., handles the paperwork, including clearing the shipment through New Zealand Customs, Ministry of Agriculture, and the National Radiation Laboratory. Often U.S. vendors consolidate antarctic science shipments with other orders destined for New Zealand hospitals and laboratories, via Nuclear Supplies, Ltd.

If you plan to order and ship radioisotopes directly from U.S. vendors to New Zealand, adhere to these instructions:

- 1. Order through one of these three vendors:
 - ▶ American Radio Labeled Chemicals
 - ▶ ICN Bio Medicals (Nuclear Supplies, Ltd. are sole New Zealand agents for these vendors)
 - ▶ DuPont/NEN (Nuclear Supplies, Ltd. are not New Zealand agents for this vendor but have permission to accept consolidated shipments from this vendor)
- 2. All orders must be marked by the vendor for "NSF Christchurch, New Zealand, via Nuclear Supplies Ltd., Auckland, NZ." Your project's Science Event Number (SEN) number and name of Principal Investigator (PI) must also be included in the shipping instructions so that the NSF Contractor Representative, New Zealand, will know to whom to consign the shipment in Antarctica.
- 3. After the order is placed with the vendor, send the NSF Contractor Representative, New Zealand, either an e-mail (NSFREPNZ@iac.org.nz) or fax (011-643-358-9060) with details of the order including the vendor used, purchase order number, list of radioisotopes ordered and their activity, an air waybill number for the shipment, and date that shipment is expected to depart the U.S. and arrive in Auckland, New Zealand.

Upon receipt in Christchurch, the NSF Contractor Representative, New Zealand, ensures that the shipment is consigned to the PI at a station in Antarctica or aboard a U.S. Antarctic Program vessel at Port Lyttelton.

If you cannot order the required item from the vendors listed in paragraph 1 above, notify the

NSF Contractor Representative, New Zealand, who will coordinate with New Zealand authorities to obtain a permit on your behalf prior to shipment. Contact the NSF Contractor Representative, New Zealand, with any questions.

SCIENCE CARGO

Many dollars have gone into the support of each science project and the facilities required for the projects. Data and their subsequent interpretation are the greatest single return on this investment. Data and specimens should be transported with the same care and forethought that went into planning the research.

The challenges presented in transporting cargo and passengers to and from Antarctica are diverse. Antarctic operations are divided roughly into two geographic areas, the Continental and the Peninsula Areas, differentiated by the stations and the means of supplying those stations.



The *Support Information Package* (SIP) is distributed to science teams and provides information on due dates, limitations, restrictions, etc.

Instructions on Packaging and Shipping, provided by RPSC, explains exactly how to package and ship your science cargo to and from Antarctica. This publication is kept current with recent methods of safe and damage-free shipping, examples of how to time your shipments, and the current name, address and phone of the Port Hueneme representatives.

You can find this information online at http://www.usap.gov.

Sea and Air

Due to the unusual restrictions presented in getting cargo to Antarctica, requirements are analyzed and cargo loads are planned months in advance. Planning begins with information gathered from the Support Information Package (SIP) and RPSC Management.

Responsibility for cargo and passenger movement within the Continental Area, rests with the RPSC Director of Logistics and the RPSC Manager of Terminal Operations (ATO). During the summer season at McMurdo, RPSC's Terminal Operations department manages all cargo transported to McMurdo Station and onward.

U.S. Antarctic Program/Science Cargo is the facility that focuses on the cargo related to **science** efforts, special S- or T-events, and hazardous cargo. At McMurdo Station, cargo is documented, packaged, and labeled for transport and then turned over to the Movement Control Center (MCC) staff for actual transport. All hazardous cargo to be transported via helicopter is also processed through the U.S. Antarctic Program Science Cargo office. Should you require assistance in determining the whereabouts of cargo you have shipped, these people can tell where in the U.S. Antarctic Program cargo system your particular cargo is located. It will assist them if you can provide a copy of the U.S. Antarctic Program Shipping Document, or, for commercial shipments, a copy of the bill of lading or airway bill.

Methods of cargo transport used each year in support of science are:

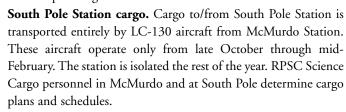
- **Palmer Station via research vessels.** Cargo must reach the NSF Contractor Representative in Port Hueneme, California, at least 90 days before it is to be loaded aboard the research vessel in Punta Arenas, Chile, for forwarding to Antarctica.
- **McMurdo Station via charter resupply vessel.** A U.S. flag charter ship goes from Port Hueneme to McMurdo Station, arriving in early February. Cargo for this ship must be received in Port Hueneme, California, by 1 December. This ship is the preferred transport for delivering materials to McMurdo and the inland stations. Plan to get as much of your cargo as possible on it.
- **McMurdo Station via kilo-air.** For material that cannot be sent to McMurdo on the resupply ship the year before, use 'kilo-air cargo.' Kilo-air cargo is sent by commercial ship from Port Hueneme, California, and arrives in Port Lyttelton (near Christchurch), New Zealand, in September. Cargo is flown from there to McMurdo. Kilo-air cargo needs to

- ✓ It typically costs twenty to thirty times more to fly items than to ship them via vessel.
- ✓ Many times air transport costs exceed the cost of the actual item being transported.
- Lack of planning results in excessive transport costs.

arrive at Port Hueneme by 30 August.

Commercial air cargo. If circumstances prohibit shipment by sea, you may be authorized to use air cargo. This is the most expensive way to ship and will be used only for essential material that cannot go by sea. Air cargo will not be authorized as a substitute for proper

advance planning of material movements.



Hazardous cargo. Explosives, gases, flammables, oxidizers, poisons, radioactives, corrosives, and other hazardous materials are forbidden in baggage and mail and must be shipped as cargo. Hazardous cargo must be packaged, labeled, marked, and documented in accordance with the applicable federal, international, military, and U.S. Antarctic Program regulations. Contact the RPSC Hazardous Cargo Specialist for more information.

Emphasis on sea cargo. The U.S. Antarctic Program is committed to maximum practical use of sea cargo—and to minimum use of air cargo, which is vastly more expensive. Shipping by sea is the preferred method for transporting grantee and other materials to Antarctica. It is far cheaper than air cargo and it is secure. Once your cargo is packed and labeled properly and on the ship (except the 'kilo-air' ship), the next offload stop is McMurdo Station. The ship also can be used to return gear and specimens to the U.S.

Maximum use of sea transportation is possible only through planning by all concerned. Make every effort to allow sufficient time for shipment by sea. Plan to position cargo in Antarctica the season before field work.

Retrograde (Return) Science Cargo

Near the end of your stay in Antarctica, you will arrange to have your science cargo shipped to the U.S. with the U.S. Antarctic Program Cargo representative at McMurdo Station or cargo personnel at Palmer or South Pole Stations. This person will issue you the appropriate documents and accept the cargo for shipment. You are responsible for insuring, packing, and crating the equipment, and for labeling the containers.

Use of ship, rather than air, cargo back to the States, especially from McMurdo, is encouraged when the science will not be compromised by the slower delivery. Air cargo will be authorized when necessary.

Retrograde cargo is shipped to a U.S. entry point and onward to its ultimate destination. The grantee pays shipping costs from the U.S. entry point to the ultimate destination. Note that it is the shipper's responsibility to insure cargo against loss.

You are entirely responsible for any items you mail or handcarry. All retrograde cargo will go by ship unless air shipment is fully justified and authorized by the NSF Representative or designate at Palmer Station, or the NSF Representative at McMurdo Station.

Refer to Chapter 6 for information on transporting personal cargo and boxes.



Scientists working at Lake
Hoare in the Dry Valleys
must bring all their
equipment with them to
live and conduct research
for several months.

CHAPTER 5:

Travel Guidelines



Mt. Erebus is the southern-most active volcano in the world.

This chapter gives travel advice for the foreign countries through which you may travel, explains how to obtain your extreme cold weather (ECW) clothing issue, how to transport your baggage, your arrival at the U.S. antarctic station, and your return from Antarctica.

TRAVEL ADVICE

Customs and Mail Warning

Like any travelers, participants must obey foreign laws. These laws can differ from those of the U.S., and penalties for violation can be more severe than those of our country. Persons found in violation of these laws are subject to prosecution in the local courts. Association with the U.S. Antarctic Program affords neither preferential treatment nor immunity from prosecution.

Governments are determined to prevent the passage of illegal materials, especially illegal drugs, through their countries. You could be imprisoned for life for bringing or mailing illegal drugs into a foreign country.

Methods of finding illegal materials include the use of trained dogs, handled by the New Zealand Customs Service. As a request of the NSF, all mail destined for Antarctica is screened/inspected by New Zealand Customs Service. On occasion, U.S. citizens have been detained by customs on their return. Some of them have been found guilty of causing illegal materials to enter and have been fined or imprisoned.

U.S. law also prohibits the mailing of controlled substances, which includes illegal drugs. The policy (6 April 1982 Federal Register, pages 14864-14866) recognizes the responsibility of the U.S. to assure that personnel authorized to use the military postal facilities do not abuse the customs, tax, and other laws of the host country. This applies to articles/mail that are staying within New Zealand. New Zealand Customs Service does not assess a tax or duty for items going to Antarctica.

In addition to being guilty of criminal activity and causing inconvenience and expense to

themselves, persons who try to bring illegal materials through foreign countries embarrass their own country. In particular, the New Zealand mail interdictions have delayed mail for all program participants. So:

- Obey the law.
- Do not try to take illegal substances through foreign countries.
- ▶ Do not mail illegal substances.
- ▶ Tell your friends not to mail illegal substances to you.

There are also heavy penalties for concealing dutiable goods from Customs or for making false declarations. It is against the law to take dutiable items (e.g., cameras, radios, binoculars) and to sell them or give them away without paying duty.

Stay in Contact

While awaiting transportation from New Zealand or Chile, keep the local program representatives informed of where you are and how they can contact you. Transport schedules often are revised on short notice.

Be Patient

Whether you travel to Antarctica via a research vessel or by air, you should be prepared to handle delays and changes in schedules. Every effort is made to ensure the safety of program participants and that often means departures are delayed or flights are turned around. This may be due to mechanical considerations, ice conditions, and especially changes in weather.



Currency Exchange

Learn the currency exchange rate before departing for a foreign country. Bank representatives will change foreign money for U.S. money at U.S. international airports. You also can change money at most banks in foreign countries.

Generally, a better exchange rate will be found in the country whose currency you are purchasing than in the U.S. Also, in Chile rates can vary significantly between banks and currency exchange houses.

Chilean and New Zealand banks will not cash personal checks drawn on U.S. checking accounts. Carry enough money in the form of travelers checks or international credit cards such as Visa. Chapter 2: Personal Finances, tells how to transfer money to New Zealand. Remember that banks and stores may be closed on weekends.

ATM cards can be conveniently used.

Electrical Compatibility

The electrical voltage in New Zealand is 230v 50hz. For Chile it is 220v 50hz. Most portable computers will have an AC converter that will be compliant. The user will require a suitable adapter plug to connect to the wall outlet, which can be purchased from hardware and travel stores. Some small appliances, such as razors and hair dryers, can be purchased with dual voltage capabilities, but would still require an adapter plug to fit into the wall sockets.

You can find information on the type of electricity used and the type of electrical plugs needed for countries around the world at various web sites. An example of one is http://kropla.com/electric.htm.

Personal Vacations

You may elect to travel to other countries prior to returning to the United States. Any costs associated with the additional travel will be your responsibility. You will need to return to the RPSNZ/AGUNSA office to collect your tickets and any stored baggage. If you wish to spend time in New Zealand or South America, you will need to be in compliance with the immigration policies. When you stay in a country as a tourist, the program is no longer your sponsor, and you are responsible for observing immigration and customs regulations.

Grantees and RPSC full-time employees vacationing in New Zealand **before** going to Antarctica **must** contact the RPSNZ Travel office in Christchurch (telephone 0-800-358-8139) at least three days before their scheduled date to fly to Antarctica (but preferably earlier). Flight schedules to Antarctica often change, and it is advantageous to both you and the RPSNZ Travel office if regular contact is made during the period of leave.

The U.S. Antarctic Program takes advantage of significantly lower rates on airline tickets that are purchased in advance and available for return travel less than 6 months or less than 90 days from the first date of travel. The program requires its travelers to cover the extra expenses of taking vacation en route. If you elect to vacation in New Zealand, and thus extend your stay beyond the maximum stay allowed, the fare difference could approach \$1,000.

If returning from McMurdo, your Visitor Permit received in Auckland on your way to Antarctica is valid until the date shown on the stamp in your passport. If the permit has already expired, and you plan on being in New Zealand longer than two weeks, you must contact the New Zealand Immigration Service within 14 calendar days to extend your permit. If you intend to vacation in New Zealand, and your current permit will expire while you are in New Zealand, apply for an extension in Christchurch **before** your current permit expires. If you have a valid outbound ticket and sufficient funds for your stay, the New Zealand Immigration Service in Christchurch will issue a temporary permit. The RPSCNZ Travel Office will assist you in obtaining an extension to your visitor permit by providing a letter to accompany the application form. Ultimately, you are the one responsible for applying for the permit.

TRAVEL THROUGH NEW ZEALAND

Transfer at Auckland. Auckland International Airport is the port of entry into New Zealand. There, you process through Health, Immigration, and Customs checks. Have your passport, airline ticket, and New Zealand Customs declaration form handy. If you are hand-carrying high-tech and/or scientific equipment into New Zealand, be prepared to show your New Zealand Customs "Temporary Importation Into New Zealand" form to Customs officials. In the baggage claim area, carts are available for your use at no cost. After getting all your checked baggage, you are directed to Customs. Then you can recheck your baggage for the domestic flight to Christchurch. This can be done while you are still at the international terminal.

The domestic terminal is 900 meters (1000 yards) from the international one. You can take a free bus or walk between the two.

Flight to Christchurch. The flight from Auckland to Christchurch takes approximately 90 minutes. If your departure from Auckland to Christchurch is delayed or changed from that scheduled (for example, your flight from the States was delayed and you missed your connecting flight) rearrange your onward travel at the appropriate airline counter. Call the RPSNZ Travel office in Christchurch toll free (0.800.358.8139) and state the change. If you are in a group of antarctic travelers, elect one member to call with information about everyone in the group.



Meet and greet. You will be met at the Christchurch Airport Arrival Lounge by an RPSC (NZ) representative, wearing a bright red jacket/vest, holding a red clipboard displaying the USAP logo. Look for this representative and identify yourself.

The representative will give you documents that list your accommodations, orientation schedule, the date and time of your ECW clothing fitting, your scheduled flight to Antarctica,

important phone numbers, computer access, travel fund, and other critical information. Read these documents thoroughly.

Your airline tickets/e-ticket receipts (international and domestic) and any unused excess baggage coupons will be collected. These will be secured and given back to you when you return from Antarctica. Without your tickets the Christchurch office will not be able to revalidate your ticket and complete your travel plans.

Travel Service Telephone: +64.3.358.1469

RPSNZ Limited Toll-free: 0800.358.8139 (within New Zealand)

38 Orchard Road Fax: +64.3.357.8850
Christchurch E-mail: chctravel@iac.org.nz

New Zealand Contact: Travel Services Representative

NSF in New Zealand. A National Science Foundation office, in the International Antarctic Center near Christchurch International Airport, maintains a working relationship with the host country and supports program activities in Antarctica. The NSF contractor arranges for accommodations in Christchurch, manifests for travel to Antarctica, issues ECW clothing, and provides other support. Telephone 03.358.8138 (from USA: 011.643.358.8139), Fax 03.358.9060 (from USA: 011.643.358.9060).

Air National Guard Detachment 13 is located in Christchurch, New Zealand. The Commander for Support Forces Antarctica (SFA) coordinates with NSF and RPSC staff to plan and execute all military logistics activities.

U.S.–N.Z. Antarctic coordination. New Zealand is one of the original Antarctic Treaty signatory nations and has operated an Antarctic Program since the 1957-1958 International Geophysical Year. Cooperation with the U.S. is extensive in both science and logistics. U.S. investigators planning cooperative arrangements should plan directly with N.Z. investigators or research institutions rather than official N.Z. government units except when approved in advance by a U.S. Antarctic Program official.

Accommodations. Hotel/motel reservations in Christchurch are booked in advance by RPSC for all participants for the length of their stay in Christchurch. This method enables the Christchurch office to find you should there be a change in date or time for your departure to Antarctica.

If you have a specific hotel request, you will have indicated this on the travel request worksheet that you submitted to the DSG in Denver. The DSG will have forwarded this request to the Christchurch office. Every endeavor will be made to book the hotel of your choice; however, it may be necessary to book alternative accommodation if rooms are not available. If you plan to stay with friends in Christchurch, please advise the DSG of the contact telephone number in Christchurch where messages can be left for you. Flight schedules change often and it is critical that the office knows how to contact you with updates.

Hotel operators in New Zealand expect advance bookings to be honored. If you are not satisfied with your accommodations, please advise RPSNZ Travel, which will arrange for cancellation of the original reservation as well as for alternate accommodation for you. Do not change your reservations without prior approval of the change by the RPSNZ Travel office. If you do not honor your hotel reservation, expect to be billed by the hotel for the first night of the booking. With the high level of tourism in New Zealand, accommodations in summer are sometimes difficult to obtain, and disregard of the arrangements made for you will jeopardize our ability to provide accommodations in the future.

Always lock your hotel/motel room, and take precautions to safeguard your money and valuables. Hotel/motel bills, telephone charges, etc., should be settled the night before your departure from Christchurch.

E-mail and Fax. Christchurch offers a variety of options for sending e-mail and fax services at reasonable rates

Long distance calls. Most New Zealand hotels permit direct dialing of long distance calls. Long distance calls also may be placed using a pre-paid phone card, or U.S. calling cards from carriers such as MCI and AT&T.

Medical care. If you need medical care in New Zealand, please contact the RPSNZ Medical Coordinator, who will assist you with arranging medical/dental appointments. There will be a charge for your visit to the doctor/dentist. See Chapter 2: Health Insurance.

Public transportation. An extensive net of bus routes serves Christchurch, Lyttelton, the airport and U.S. Antarctic Program offices. There is frequent bus service between the airport, U.S. Antarctic Program offices, Cathedral Square in downtown Christchurch and local hotels. Following are some Taxi service numbers: Blue Star at 379-9799, Gold Band at 379-5795 and Super Shuttle at 357-9950.

Car rental and insurance. If you rent a car, be sure you know New Zealand traffic regulations and have sufficient insurance. A booklet on traffic laws called the Road Code is available at auto rental agencies. Traffic regulations are strictly enforced. Driving is on the left side of the road and requires strict attention. A driving permit is not required if you can provide a valid U.S. driver's license.

Extreme Cold Weather Clothing Issue

Extreme cold weather (ECW) clothing and accessories will be provided to you at no charge at the Christchurch Clothing Distribution Center (CDC). These items are to be returned to the CDC immediately upon your return from Antarctica. Clothing issued is the property of the National Science Foundation. Participants are responsible for all issued clothing.

The issued ECW clothing is functional, sturdy, and cost effective. It includes special items of outer clothing required for the antarctic climate, such as parkas and boots. The majority of clothing is in men's sizes but will fit both men and women. However, to ensure an acceptable fit, be sure to provide accurate measurements on the Personal Information Form (submitted with your medical information).

It is important that you **try on all** of the ECW clothing (including boots) at your fitting session. Any sizing errors will be corrected at that time. The type and amount of clothing you receive depends on where you work and what your job title entails. Most, but not all, of the ECW clothing is mandatory. If you are new to the program it is best to take all the clothing issued to you.

EXTREME COLD WEATHER (ECW) CLOTHING

The clothing issued will vary depending on station, job and season. Here is a typical listing of clothing for personnel working outside in the summer at McMurdo Station. Items in bold must be worn on the flight to and from Antarctica and during flights within Antarctica by all personnel regardless of job, station or season.

Balaclava, Polar Fleece (1 ea)
Boot, Rubber, Thermal (1 pr)
Bottle, Water (1 ea)
Cap, Yazoo (1 ea)
Carhartt (1 set)
Carhartt, Parka, Siberian Arctic (1 ea)
Gaiter, Neck, Polar Fleece (1 ea)

Glove, Leather,

Bag, Clothing, Orange (2 ea)

W/Thinsulate Lining (4 pr) Goggles, Snow, Smith (1 pr)

Jacket, Polar Fleece (1 ea) Liner, Glove, Polypro (2 pr) Mitten, Furback, Gauntlet (1 pr)

Mitten, Kodalite (1 pr)

Mitten, Windproof, W/Pile (1 set)
Pants, Polar Fleece (1 pr)
Pants, Wind, Bibbed (1 pr)
Parka, Red (1 ea)
Sock, Tube, Wool (6 pr, 1 pr worn)
Sunglasses, non-polarized (1 pr)
Underdrawers, Expedition (1 pr)
Underdrawers, Thermax (1 pr)
Undershirts, Expedition (1 ea)
Undershirts, Thermax (1 ea)

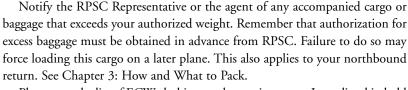
OPTIONAL Boots, Polar, FDX Jacket, Wind Trouser, Field There will be no additional clothing issued. If items are lost in Antarctica, a limited amount of resupply ECW clothing is available on station, however, the resupply stock is older and may not be an exact replacement for the lost/worn item.

The clothing issued to you is **U.S.** Government property. You are responsible for it and required to return it in New Zealand or South America during redeployment. Some issued clothing, especially parkas, are subject to theft, and special attention should be taken to prevent loss. Abnormal damages or unreported loss of clothing will result in your being billed for repair or replacement costs. Any theft or loss should be reported immediately to the NSF Representative, Antarctica, or the station manager. It is illegal for you to mail government property from Antarctica. It is illegal for individuals to buy or sell government property including clothing.

To McMurdo Station

Report for your flight at the time given to you by RPSNZ Travel Services. If you are scheduled for an early morning departure, you should order a taxicab or shuttle the night before. Allow at least 20 minutes to drive from Christchurch city center to the International Antarctic Center.

As part of the check-in process you will be given time to change into your ECW gear, pack your carry-on bag and store any other baggage that you will not need in Antarctica in the CDC secured storage room.



Please note the list of ECW clothing on the previous page. Items listed in bold must be worn on all flights to and from Antarctica and during flights within Antarctica.

Your passport should be ready for inspection by New Zealand Customs.

You will be issued an Antarctic Departure Card, which you are required to complete before moving through to the Antarctic Passenger Terminal (APT). Your passport will be checked and the Departure Card taken from you at check-in at the APT.

After dressing for your flight and completing your Antarctic Departure Card, you may walk through to the APT for official check-in and weigh-in. This is commonly known as 'bag drag.'

After being checked through the APT, you will no longer have access to your baggage except the carry-on piece. You may not leave the area unless authorized by officials. Transportation to the plane is provided. Personnel who, in the judgment of the airplane crew, are intoxicated will not be permitted to board airplanes, either en route to or from Antarctica or when travelling within the Antarctic continent.

You will fly between New Zealand and Antarctica on an NSF or military-owned LC-130 Hercules turboprop airplane operated by the U.S. Air Force 109th Airlift Wing, on an NSF-chartered C-141 or C-17 plane (jet powered) operated by the U.S. Air Force Air Mobility Command, or a Royal New Zealand Air Force C-130. The LC-130 flight takes about 8 hours; the C-130 flight, about 7 hours; the C-141 or C-17 flight, about 5 hours.

These cargo and troop planes are not designed primarily for passenger convenience. Sack lunches are served during the flights at no cost to the traveler. Toilets are provided on all planes, but the facilities can be awkward.

On the plane, you will hear an announcement that you are about to arrive at McMurdo Station. The air crew will ask you and your fellow travelers to pick up all the trash and put it in containers. Then, recalling the clothing instructions, organize yourself and your gear. Shortly, you will be instructed to fasten your seat belt.

The weather in Antarctica is likely to be clear, cold, and very bright. After the plane has stopped, gather your possessions, zip up your parka, and put on sunglasses and gloves. An air service representative will board and brief you about disembarking.

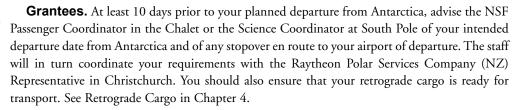
On arrival at McMurdo Station, you will be given an in-brief and instructions about collecting baggage and about your housing. Generally, your checked baggage will be ready for you at the Movement Control Center (MCC) in McMurdo 2 hours or so after you arrive. For larger groups, RPSC often sends a vehicle to the MCC to pick up and distribute baggage.



A U.S. Antarctic
Program participant
and his carry-on
baggage is weighed
at the Antarctic
Passenger Terminal
in Christchurch,
New Zealand.

Return to New Zealand







RPSC Employees. Weeks before redeployment begins employees are given check-out instructions and personal flight request information is collected. Prior to completion of your contract, your supervisor will schedule you on one of the return flights from McMurdo to Christchurch. You will also be given a travel fund for your redeployment from Antarctica. Note: The Denver Travel office does not assist with redeployment ticketing.

Excess Baggage. Remember that prior approval for excess baggage is required for anything over the standard limits (see Chapter 3) and that separate approvals are required for both south and northbound travel. If you check-in for a northbound flight in McMurdo without the necessary excess baggage approvals, you will be required to mail that excess through the U.S. Post Office at McMurdo Station.

Be sure to carry your **passport on your person** and not in your handcarry bag. You may not have access to your handcarry prior to passing through customs.

Upon your return to Christchurch from McMurdo, you will be met in the terminal building customs area by personnel from the Raytheon Polar Services Company (NZ) Representative. Transportation will be provided to the CDC so that you may return your cold weather clothing issue and retrieve personal belongings stored in the security room. You will be given information about your accommodations and travel before departing for your hotel by taxi or shuttle bus. Your airline tickets will be available from the Travel Services office during normal business hours.

Before leaving the Auckland or Christchurch airport on an international flight, you are required to pay a departure fee. In 2004, the fee was NZ\$25.

NOTE: Remember that your APO privilege to mail boxes at U.S. rates expires in 10 days. See Chapter 3: APO Privileges.

TRAVEL THROUGH CHILE

Over the years the U.S. has staged its Antarctic Peninsula operations, which depend mostly on ship transport and research cruises, through both Chile and Argentina. Any deployments through Argentina, or other countries, are coordinated in advance directly with the NSF and the RPSC Supervisor of Logistics, Peninsula. In Chile, the U.S. Antarctic Program has contracted with Agencias Universales S.A. (AGUNSA) to provide support and manage local offices.

Chile and the U.S. cooperate frequently in Antarctica. Chile is an Antarctic Treaty nation, and it has year-round stations along the Antarctic Peninsula. Argentina and the U.S. have also cooperated in a number of antarctic projects. Argentina is also an Antarctic Treaty nation, and it has a year-round research program that centers on the Antarctic Peninsula.

While Spanish is the predominant language, English is spoken by many of its citizens, including agents employed by RPSC to assist you in your passage. A simple Spanish phrase book may prove helpful.

Health Advisory. As in other remote countries, you are at risk of contracting cholera, typhoid fever, hepatitis A and parasites when traveling in Chile. These are mainly spread by contaminated food and water. It is advised that you drink only bottled water, do not use ice and do not eat raw vegetables or seafood.

If you require health care on your travel through Chile, contact the local AGUNSA office for assistance in making appointments. Be prepared to pay for services at your appointment. See

Chapter 2 on health insurance.

The two cities that you will pass through in Chile are **Santiago** (population: 5 million), the capital, where your plane from the U.S. will land, and **Punta Arenas** (population: 130,000), from where you will depart for Antarctica. In the austral summer Santiago is hot, and the weather in Punta Arenas can vary from cold to warm. Chile's food and lodging costs are about the same as or less than in the U.S.

Arrival and departure taxes. At the time this book was published, U.S. passport holders who are first-time visitors to Chile will be required to pay an international arrival tax of US\$100 upon arrival in Santiago, Chile. This may be paid in U.S. dollars. This arrival tax payment is good for the life of your passport and should be secured in your passport. RPSC employees will be reimbursed via expense report, with a copy of your Entrance/Tourist tax receipt. Please bring a minimum of US\$100 in cash with you when deploying to Antarctica via Punta Arenas.

On arrival at the Santiago airport you will be met by an AGUNSA agent, who will assist you through customs and help you to make the onward domestic flight to Punta Arenas. The agent will direct you from the international terminal to the domestic terminal and ensure that you get on your flight to Punta Arenas. The agent will also advise you of any costs for airport taxes or excess baggage. In an **emergency**, the U.S. Embassy in Santiago may be phoned at 330-3321 or 330-3700 (from the U.S.: 562-330-3321 or 562-330-3700).

Costs for hotel rooms, incidentals, and meals will be paid by you. The agents and ships representatives can provide local information as to restaurants, money exchange, etc.

The flight to Punta Arenas takes approximately 3-1/2 hours. Again, a representative from the husbanding agent, AGUNSA, will meet you at the airport and provide transportation to a local hotel or the vessel. You may be asked to board the vessel immediately upon arrival in Punta Arenas. However, the majority of people traveling to the station are scheduled to spend one night in a hotel and board the ship the following day. Generally, if you are not asked to board the ship immediately you should not request to do so since it means the ship is not yet ready to take passengers. Be on schedule as time to complete your outfitting is limited and ship schedules are often tight.

RPSC is represented in Punta Arenas by AGUNSA, which also manages the U.S. Antarctic Program ECW clothing warehouse. The airport representative will greet and assist you, notify you of your ECW clothing issue time, your ship embarkation times, and help you with local authorities.

Santiago

AGUNSA

Agencies Universales, S.A.

Andrés Bello 2687 Telephone: 56-62-203-9000
Piso 15 Fax: 56-62-203-9009
Las Condes E-mail: ebraniff@agunsa.cl
Santiago, Chile Contact: Sra. Emma Braniff

Punta Arenas

AGUNSA Main Office Telephone: 65-61-248706/241065

Av. Independencia 772 Fax: 56-61-228239
Casilla 60-D E-mail: rdoberti@agunsa.cl
Punta Arenas, Chile Contact: Sr. Ricardo Doberti

AGUNSA Telephone: 56-61-248706/247503

Warehouse Port Area Fax: 56-61-226095

Casilla 60-D E-mail: agunsa@chilesat.net Punta Arenas, Chile

NOTE: Nothing may be charged to the agent that has not been approved in writing by the Office of Polar Programs.

ECW Clothing

Extreme cold-weather (ECW) clothing and accessories will be provided to you at no charge from the Punta Arenas warehouse. These must be returned to the warehouse immediately upon your arrival in Punta Arenas on your return from Antarctica. You are responsible for the safe-keeping and accountability of all items issued and may be charged for loss or damage as a result of gross negligence or willful misconduct.

The ECW clothing issued is functional, sturdy, and cost effective. It includes special items of outer clothing required for the antarctic climate, such as parkas and boots. To ensure an acceptable fit, be sure to provide accurate measurements on the Personal Information Form (submitted with your medical packet).

It is important that you try on **all** the ECW clothing (including boots) at your fitting session. Any sizing errors will be corrected at that time. The type and amount of clothing you receive depends on where you work and what your job title entails. If you are new to the program it is best to take all the clothing issued to you. There will be no additional clothing issued. If items are lost in Antarctica, a limited amount of resupply ECW clothing is available on station, however, the resupply stock is older and may not be an exact replacement for the lost/worn item.

Baggage

Due to crowded conditions on the research vessels, you should pack required clothing and personal items you'll need on the journey into a single piece of luggage. The remainder of your luggage will be stowed in the ship's hold and returned to you on arrival at the work site.

Only science equipment that is used in multi-year projects may be stored in the warehouse if approved in advance by NSF.

To Palmer Station

Travel to Palmer Station and other Peninsula research sites is primarily via the *R/V Laurence M. Gould*. The ship transit takes 4-5 days depending on routing. Once embarked the RPSC representative and ship's personnel will outline ship procedures, safety policies, and room assignments.

Ship transits are usually crowded so please comply with regulations and show courtesy in the dining areas. Meals are provided free. If you are prone to motion sickness consult with your personal physician prior to deployment. Over-the-counter type pills (e.g., Mechlazine) are often sufficient to relieve sea-sickness.

On arrival at Palmer Station please clean your cabin and ensure you take all your baggage and personal items with you when you disembark.

Return to Chile



Grantees. At least 3 weeks before you plan to return from the Antarctic Peninsula area to South America, give your northbound travel plan to the RPSC Administrative Coordinator at Palmer Station or the Marine Projects Coordinator on your ship. Identify any requirement for excess baggage or special handling of material. Airline and hotel bookings will be confirmed for you with the appropriate agent. You should also ensure that any retrograde cargo is ready for transport: see "Retrograde (return) Cargo" in Chapter 4.



RPSC Employees. Prior to completion of your contract, your departure will be scheduled; you will have indicated any travel plans and will be given your travel fund.

On arrival in South America you will be met by the AGUNSA representative who will give you your airline tickets and collect your ECW clothing issue. For personnel traveling straight through Chile to the U.S. or on NSF/OPP-approved business travel, AGUNSA will confirm travel arrangements and transport personnel and baggage to the airport. Individuals with personal deviations from the Punta Arenas/Santiago/U.S. direct route will be directed by AGUNSA to coordinate their personal travel with local travel agencies. **Personal travel arrangements can be completed by calling American Airlines' Meeting Services at 1.800.433.1790**. Individuals on

personal travel are responsible for their own transportation to the Punta Arenas airport, and will not receive a 'meet and assist' service in Santiago.

TRAVEL WITHIN ANTARCTICA

Travel Requirements for grantees and planning dates for field deployment are identified well in advance using information provided by the Support Information Package (SIP) and RPSC managers. Planning meetings are held, and after interaction with NSF and transport providers, a final timeline for each project is identified. This timeline is published in a Research Support Plan (RSP). RPSC creates a plan for each science project and sends the custom document to the project PI for his/her review and comment. Changes to any air supported timelines may be requested through the RPSC Science Planning Managers.



There is more detailed information on LC-130, twin-otter, and helicopter support in the *Field Manual for the U.S. Antarctic Program*.

LC-130 ski-equipped airplanes are operated by the 109th Airlift Wing of the New York Air National Guard. These airplanes provide a heavy-lift capability to all inland stations as well as Search and Rescue capability for the entire continent. Flights from McMurdo to South Pole Station usually take 3 hours.

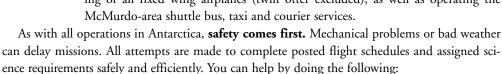
Twin Otters are used for logistical/field support of smaller parties within a moderate distance from a hub (South Pole or McMurdo).

Helicopters are used principally for logistical support on Ross Island and in the Dry Valleys. Safety training is required. Schedules are posted daily and are subject to change.

Field Support is responsible for the efficient and economical allocation of air resources to meet U.S. Antarctic Program objectives. Hourly allocations and rigid timelines are constructed prior to each antarctic season.

U.S. Antarctic Program Cargo is the packaging facility and point of entry for all cargo generated at McMurdo Station. U.S. Antarctic Program Cargo also handles the packaging and documentation of all hazardous cargo for both air and sea transport in the U.S. Antarctic Program (excluding waste). For grantees, the U.S. Antarctic Program Cargo Supervisor is the point-of-contact for any cargo tracking or status questions.

RPSC Movement Control Center (MCC) provides a terminal operations function for all continental cargo and passenger movements. MCC coordinates passenger manifesting, bag drags, and transportation to and from the McMurdoarea airfields in addition to providing support with pallet building and airplane load planning. MCC personnel are also responsible for the loading and unloading of all fixed wing airplanes (twin otter excluded), as well as operating the McMurdoarea shuttle bus taxi and courier services.



- Anyone traveling on any aircraft (helicopters, twin otters, LC-130s, C-141s, C-17s) as well as the U.S. Coast Guard ice breakers must be manifested. Grantees travel requests are processed through the NSF Passenger Coordinator at the chalet and forwarded to the MCC in McMurdo where the manifests are finalized.
- ▶ Transportation to the airstrip is provided. In McMurdo, reporting times are posted outside the galley or on the Antarctic Terminal Operations (ATO) video information channel. Be on time; airplane departures will not be delayed for persons arriving late.
- Try to have a good meal before long flights, although a bag lunch is provided en route.
- Do not consume alcoholic beverages prior to flight. Neither MCC personnel nor airplane commanders will allow you aboard without survival gear or if you appear under the influ-



An NSF helicopter carries barrels of fuel to a remote field camp.

ence of alcohol. Consumption of alcoholic beverages is not permitted aboard airplanes.

- You must wear (not just bring along) the required ECW clothing.
- ▶ You must not be carrying unauthorized hazardous material in your baggage or on your person.

NOTE: You have limited opportunities to enjoy a variety of organized field trips off the station. All of these activities must be authorized. Any unauthorized travel on aircraft (helicopters, twin otters, LC-130s, C-141s, C-17s) or ocean-going vessels may result in removal from Antarctica.

CHAPTER 6:

Working at U.S. Antarctic Program Facilities



U.S. Antarctic Program
participants carry a
refueling hose to a U.S.
Coast Guard icebreaker.

The United States operates three year-round stations in Antarctica, two research vessels, and numerous summer seasonal field camps. This chapter discusses safety, health, and training considerations and then gives an overview of each facility, describing the key administrators, guidelines on waste management, and provides information about communications and mail service.

SAFETY, HEALTH AND RECREATION

Safety and health concerns are discussed at numerous places in this manual. The nature of Antarctica, and its great difference in many ways from most places, require that this subject receive fuller treatment here.

In the last decade, antarctic safety and health issues have been addressed with increasing effectiveness. U.S. Antarctic Program goals are to protect your safety and health and to ensure that facilities, equipment, and materials are not damaged or lost by mishaps.

Fire Safety

Fire is the **most serious threat** that confronts participants in Antarctica. Shelter is critical to our survival and because of the dry and windy conditions, fires start easily and spread rapidly in Antarctica.

Most fires are directly attributed to carelessness, poor housekeeping, or faulty electrical or mechanical operations. If precautions are taken to eliminate dangers in these areas, the threat of a disastrous fire can be greatly reduced.

All participants need to understand and obey fire prevention rules, become familiar with their surroundings, respond rapidly to any alarms, know and follow evacuation and muster plans, know how to locate and operate extinguishers, and understand how and where to report a fire.

Required Training

Since much of your work in Antarctica will **not** be unique to that region, you are expected to use work practices that are consistent with U.S. occupational safety and health standards. For situations that present unusual or unique hazards because of Antarctica's extreme environment, you will be provided specific instruction (for example, how to act on sea ice or around airplanes).

The *Field Manual for the U.S. Antarctic Program* provides information on field party preparation, safety training, transport safety, radio usage, weather, shelters, sea ice, glacier travel, rescue,

etc. At least one copy is provided to each field science team. Copies are available at RPSC work centers and on the web at www.usap.gov.

SAFETY

The five most common injuries are...

- Sprains/Strains
- Contusions (bruises)
- Lacerations (cuts)
- Fractures
- To the eye

If you do have an injury...

- ▶ Report it immediately.
- Get immediate medical attention.
- Never hesitate or delay going to Medical for treatment.
- You could be penalized for not reporting an injury or a near miss incident.
- We believe reporting and analyzing incidents, and acting on results, is the best way we can help can prevent future incidents.
- Accidents or injuries caused by failure to follow safe work practices, procedures, or training could result in disciplinary action.

If you have people working for you...

- You are responsible for fostering a safe work place.
- You must ensure your employees are properly trained, work safely, maintain safe conditions, and are aware.
- In the event of an injury or incident, you must complete an injury or incident investigation report, and take corrective action.
- The report must be filed the day of the injury.

Field Safety Training (Survival School)

The U.S. Antarctic Program continually strives to improve safety. Part of this effort consists of field safety training which has several objectives:

- 1. To provide basic training in cold weather survival skills. Topics covered include cold weather camping, use of antarctic clothing, hypothermia and frostbite, snowcraft, mountaineering, working on sea ice, and other areas.
- 2. To enable field teams to use the actual equipment they will be using in the field. An opportunity for the project teams to set up and demonstrate the proper use of tents, stoves, radios, snowmobiles, and sleds pays obvious dividends.
- 3. To provide an opportunity for field team members to work together as a unit, perhaps for the first time, before going into the field. This is an excellent opportunity for the field team leader, as well as the individuals on the team, to learn the strengths and weaknesses of the team members.

Generally, anyone who may require overnight stays away from a station must complete training appropriate to his or her expected exposure, previous training, and experience. Some courses are tailored to the needs of each group. For example: instructions for parties spending their time in the Dry Valleys, groups working on sea ice, and groups traveling long distances by snowmobile.

The courses are not intended to develop essential field skills (mountaineering, or traversing crevasse fields, for example) in the inexperienced person. Rather, they familiarize proficient people with specific situations they might encounter in the Antarctic. Leaders of remote field projects should select team members with wilderness survival skills and at least one safety guide to oversee activities.

Due to the nature of the instruction, there is some risk of injury. The instructors have full responsibility for conducting the program safely. Please follow their directions. People who enter the training area to observe are also the responsibility of the course instructors; failure to respond to directions given by course instructors will result in being asked to leave.

Health Considerations

Antarctica's extreme environment and relative isolation challenge human health and wellness. Health is a 24-hour-a-day consideration; it involves occupational and non-occupational issues, both physical and mental. Emergencies risk not only the victim, but also others such as medical personnel and flight crews who provide treatment and evacuation. This expenditure of money, manpower, and equipment resources diminishes the ability to perform the program's principal

mission of scientific research.

To help minimize risk, the program requires the advance medical screening described in Chapter 2. Certain medical conditions can present unexpected risks under antarctic conditions, where each participant must be capable of physical activity wearing bulky cold weather gear while being exposed to low temperatures and high altitudes, possibly under survival conditions.

Common Colds. Although the 'Crud' waylays many antarctic travelers, it is not true that exposure to cold temperature causes upper respiratory infections or 'colds.' They are caused by a host of viruses and are spread by droplets. Covering your mouth when you cough/sneeze, not sharing cups and eating utensils, and washing your hands after coughing or sneezing will reduce exposure.

Colds usually last from seven to ten days with or without treatment. The best care is rest, adequate nutrition, and increased fluid intake.

Antarctica is a polar desert and very dry. In such a dry environment large amounts of fluid are lost via your skin and lungs and the mucous membranes lining your nose and mouth become dry and no longer protect you against viruses. Increase your fluid intake according to your location

Additional Guidelines

Aspects of environmental protection are covered in many parts of this guidebook. It is your responsibility to know them. Here are a few more common-sense examples of how you can do your part.

Don't Litter. Use the appropriate receptacles and comply with the waste management program at your station. Winds can turn litter into dangerous living materials.

Secure construction sites. Pick up debris, and dispose of it properly. Protect materials outdoors from scattering by the wind.

Handle waste properly. If you handle waste, know the rules. If you do not know them, ask a supervisor, a lab manager, RPSC Waste Management employee, or an NSF representative.

Leave only footprints. Bring everything back to McMurdo, Palmer, South Pole or the ship from field camps. This includes human waste.

Handle lab chemicals properly (including photographic chemicals). Pack, store, and identify them correctly. Arrange for proper disposal according to instructions.

Don't spill fuel. Take the time and precautions necessary to avoid spills. Waste fuels and lubricants have to be labeled and stored for return to the USA. Any spill should be reported to the McMurdo fire house or the Station Manager at South Pole and Palmer Stations.

Help clean up. Volunteers assemble from time to time to police an area. This is an opportunity to work with your colleagues to keep camp and station areas clean.

Remove all waste from camps. Any camp or installation outside of a station is required to return all waste, including human waste, to the station for proper disposal. McMurdo in particular is set up to handle wastes generated at remote sites.

Avoid disturbing wildlife. In particular, do not walk on vegetation, touch or handle birds or seals, startle or chase any bird from its nest, wander indiscriminately through penguin or other bird colonies.

Do not introduce plants or animals into the Antarctic or collect eggs or fossils.

Do not enter any of the Antarctica Specialty Protected Areas, and avoid Sites of Special Scientific Interest and Antarctic Specialty Managed Areas.

Avoid interference with scientific work and do not enter unoccupied buildings or refuges except in an emergency.

Take care of antarctic historic monuments.

Always keep together with your party.

and your level of physical activity. Caffeine and alcohol will increase fluid loss, so avoid consuming large amounts of beverages/foods containing alcohol and caffeine, particularly if you are dehydrated. Chocolate and many soft drinks contain caffeine.

Sunburn. Snow or ice reflects 85% of ultraviolet radiation. Overestimate the protection necessary and carry a sunscreen with an SPF number of 15 or greater that includes both UVA and UVB protection. Reapply frequently according to package directions.

Altitude Sickness. Some of the field camps and Amundsen-Scott South Pole Station are at physiological elevations above 10,000 feet (3,000 meters). The flight from McMurdo doesn't allow time to acclimate enroute. If you are assigned to these areas, you should check with your doctor to see if living at the high altitudes will affect any preexisting medical problem. A medicine called Diamox will be available at McMurdo Clinic. Treatment should begin 24 hours before leaving for the high altitude. This medicine is contraindicated for those allergic to sulfa medications. The signs of altitude sickness are shortness of breath that is not relieved promptly by resting, headache, dizziness, and difficulty sleeping. They can be minimized by avoiding strenuous activities the first two days, increasing fluid intake, stopping or limiting smoking, and avoiding alcohol and caffeine. Altitude sickness can occur as late as five days after reaching altitude, and occasionally, can progress to a serious medical condition requiring evacuation to a lower altitude. Anyone developing symptoms should see the local medical provider.

Snowblindness. Caused by exposure of the eyes to excessive light, at levels typical in Antarctica, this condition can be serious, painful, and disabling. You prevent snowblindness by wearing 100% UV protective sunglasses. Snow goggles are issued to those who need them. Everyone in Antarctica must have sunglasses that protect the eyes from ultraviolet radiation. Some 'dark' glasses do not block UV. They do more harm than good because the iris widens to admit more light. Sunglasses

are especially important on windy days to protect against volcanic ash particles in the eyes. For more information refer to Chapter 3: What and How to Pack.

Female Considerations. Many women living in Antarctica experience a variety of changes in their menstrual cycles. It is thought that this occurrence may be due to the changing daylight cycles and to the close proximity of other women.

Smoking. In addition to the well known health hazards, smoking greatly increases your chance of dehydration. Smoking is prohibited in all indoor areas except those designated specifically as smoking areas. Smoking outside is allowed except in fueling and hazardous areas. Put cigarette butts in appropriate containers—not on the ground.

Recreation and Personal Conduct

A range of authorized recreational opportunities are available in Antarctica. McMurdo Station has facilities for physical exercise and recreation including volleyball, basketball, football, darts and the annual Scott's Hut Race. Jogging, aerobics, and weight training are popular. South Pole and Palmer stations also have recreational facilities, although more limited than McMurdo. Activities at these two smaller stations are more spontaneously organized. Off-station activities such as hiking may be pursued in accordance with safety rules issued at the stations. Residents are encouraged to use the recreational facilities and activities.

Because of the nature of Antarctica, certain restrictions are required to ensure safety. Many operational procedures may impinge on what may appear to be excellent forms of recreation. For example, restrictions forbid a Sunday stroll through the pressure ridges near Scott Base to see the seals, walks on un-flagged snow or ice fields, local mountain climbing or a tour of old South Pole Station. Accidents have happened, and we wish to prevent recurrences. Different people perceive risk and hazards in different ways; heed the wisdom of those who have gone before you, and follow the safety procedures that have evolved. Antarctica is as cold, and as indifferent to one's presence, as it was when Robert F. Scott was there.

The work equipment you are issued is for authorized activities. Due to the nature of the field equipment you have access to, you may be tempted to engage in unauthorized overnight camping trips, skidoo races, or Sunday drives to the ice runway. You are authorized to use the U.S. Government equipment issued to you only to accomplish your approved program.

The guidelines and operational procedures that govern your conduct while in Antarctica vary considerably at different locations and with changing conditions, particularly weather. Familiarize yourself with local knowledge at your station or camp, and follow local regulations. These are only guidelines; it is impossible to write rules to cover all circumstances. Regulate your own activities to avoid injury to yourself and hazards to others who might have to attempt rescue. Antarctica—every part of it—can suddenly and unexpectedly become a very dangerous place.



Attendance of an *Outdoor Safety Training Session* is required by McMurdo residents before they are allowed to recreate off-station. This half-hour discussion covers rules and guidelines for safe travel, explains the check-out process and participants receive cards to verify training.

Alcohol & Drugs

Even during off-duty hours, events may require swift, intelligent action. The ability of a person to deal effectively with a mishap is reduced if he or she is intoxicated. The National Science Foundation will not tolerate abuse of alcohol or unauthorized use of controlled substances. Drug and alcohol abuse will result in your removal from Antarctica and may become a barrier to future participation in the program. Existing grants are subject to revocation in the event of substance abuse.

Persons under the influence of alcohol or other controlled substances will not be allowed on program airplanes.

U.S. Criminal Jurisdiction

Public Law 98-473, the Comprehensive Crime Control Act of 1984 (Part H, chapter XII; 18 USC 7), extends Special Maritime and Territorial Jurisdiction to cover offenses committed by or

against U.S. nationals in areas not under the jurisdiction of other states. Since, in accordance with provisions of the Antarctic Treaty, the U.S. does not recognize territorial claims in Antarctica, this law establishes that persons **can be prosecuted** in a Federal court for violation of U.S. criminal law in Antarctica.

WASTE MANAGEMENT AND RECYCLING

Every participant deployed in the U.S. Antarctic Program is expected to comply with applicable environmental and safety guidelines. This includes participation in the waste management and recycling program.

McMurdo Station separates all wastes, including cardboard, scrap metal, aluminum, glass, white paper and plastic for return to the U.S. Upon arrival, everyone is required to attend a briefing regarding the waste segregation and recycling program. Appropriately labeled receptacles and dumpsters are located throughout McMurdo to assist personnel in proper segregation.

Additionally, the management of daily non-recyclable wastes is somewhat more stringent in Antarctica than any other place. Personnel in the U.S. Antarctic Program are required to sort their own "garbage." Marked receptacles are located in work centers and housing areas for the separation of not only recyclable, but of burnable, non-burnable, and potentially hazardous wastes (i.e., dry-cell batteries, aerosol cans) as well. A recycling system is also in place at all other antarctic locations.

The antarctic environment requires us to pay close attention to aspects of life easily overlooked at home. Services we typically take for granted—abundant electrical power, plentiful potable water, ample food, convenient transportation, and timely and easy waste disposal—are scarce and expensive in Antarctica. Their conservation and efficient management are imperative if the United States is to continue to support broad-based science programs in Antarctica. For that reason, and because of our commitment to preserving Antarctica for future research and discovery, the United States Antarctic Program requires that participants carefully think about what they bring, use, or throw away in Antarctica. Regulations governing waste management under the Antarctic Conservation Act specifically require that we change the way we think about trash.

Given that neither climate nor the remoteness of the southern polar region are naturally conducive to human life and work, everything needed to support scientific research in Antarctica must be shipped or flown in. The USAP waste management practices follow the same principle in reverse: All the program's refuse—except waste water—is returned (retrograded, in antarctic parlance) to the United States for recycling, reuse, or proper disposal. Despite the challenges to waste management posed by the Antarctic environment, the task may be stated simply as: What comes in must eventually go out.

The intent is to diminish the environmental impact of a sizeable human presence on a continent where cold, dry conditions tend to preserve things rather than degrade them. In addition, we must be efficient and cost effective in the allocation of resources necessary to handle waste generated in Antarctica in order to further the USAP's primary antarctic mission: support of research. Like most waste reduction efforts in communities at home, the USAP operates according to the tenets of reduce, reuse, and recycle.

COMMUNICATIONS

Communications within Antarctica, and between Antarctica and other parts of the world, are a vital and integral part of research and support in Antarctica. The primary use of communications is to support official requirements of the U.S. Antarctic Program, including both science and operations. However, there are opportunities for personal use of communications on a "not to interfere" basis.

In the last several years, satellite links, microwave ground links, repeater stations, electronic mail, and other innovations have dramatically improved antarctic communications. This transition, and adaptation of emerging technologies, will continue to evolve in the U.S. Antarctic Program. The

information provided below is thus subject to change, and you should look for updates.

A small **computer** center is available 24 hours a day at all 3 stations for public use. The standard operating system is Windows XP. Personnel are not allowed to download or install software without prior approval. Some of the computers are set up for digital camera downloading and photo manipulation. Memory card readers are available on a few computers. Some public use computers have CD burners, but it is the responsibility of the participant to provide their own CDs.

Internet and e-mail are available at all three stations. The South Pole currently only has connectivity 12 hours a day. Non-grantees will be assigned a USAP e-mail address upon arrival at their destination station. You will be able to access your personal e-mail account (e.g., Hotmail, Yahoo) while in Antarctica. E-mail attachments cannot exceed 5 MB. Business and science attachments in excess of 5MB can be FTP'd with the assistance of the Information Technology (IT) personnel. Grantees can FTP files at any time, with or without IT assistance.



Grantees will **not** be assigned a USAP e-mail address unless one is either requested in your SIP or once you have arrived on station. If a local account is not requested, all local mail will be forwarded to the e-mail address specified in your SIP. Both Macs and PCs are available, as is a scanner, a color printer and an E-size plotter. Grantees are reminded to bring any special cable connections for digital cameras in addition to driver software. Grantees will be allocated blank CDs and DVDs as specified in their Research Support Plan.

Laptop computers. All agency, grantee and personally-owned computers must first pass a basic security check administered by Information Technology staff prior to accessing network resources. It is required that all visiting computers have up-to-date anti-virus software that is configured to receive current anti-virus definition (DAT) files on a regular basis, and must undergo a full virus scan. This process is necessary to protect the network from computer viruses and other potentially harmful elements.

PROHIBITED AT ALL THREE STATIONS AND FIELD CAMPS

- Wireless communications systems or equipment
- Wireless network equipment, without prior approval
- Wireless Internet devices (802.11x)
- Cordless telephones
- Cordless headsets
- Personal network equipment (hubs, routers, switches, etc.), without prior approval
- VHF radio or family-services radios
- Broadcast equipment
- Radio Control devices

Such computers are judged on a Pass/Fail standard. In the case of Fail, Information Technology will provide limited support to resolve the matter (determined by the PC Technician Lead, based on criteria including work load, problem scope, cost, and availability of technical resources). For grantees, every effort will be made to bring the laptop up to current virus-protection standards.

In formulating your plans for research or working in Antarctica, please be aware of the following list of Information Technology-related directives.

- All personal laptop Operating Systems must have the most current software patches installed from the vendor. This is to reduce vulnerabilities from virus or security attacks.
- ▶ When connected to the USAP network, do not activate personal firewalls until the firewall is registered with the PC Technicians.
- Large e-mail attachments are restricted according to the station's or ship's limitations in bandwidth. Contact your POC for more information.
- You will be using a federal government computer system and should be aware that you should have no expectation of privacy when using NSF-provided computers, access to the Internet or electronic mail systems. Files maintained in NSF computers, including electronic mail files, may be reviewed by NSF officials who have a legitimate reason to do so when authorized by the Director or Deputy Director or by the Inspector General.
- Failure to comply with these directives could result in disciplinary action.
- For additional IT related issues, contact your point-of-contact.

Telephones. U.S. Antarctic stations and ships access commercial and government satellites for transmission of data and voice. This service is available for business and private use, although official communications have priority. The satellite systems are very reliable, but service outages do occur. A calling card (e.g., MCI, Sprint) is needed to place personal calls from all three stations in

Antarctica. South Pole residents can place personal phone calls during satellite connectivity, currently at 12 hours per day.

Field-party communications. Each station and ship uses hand-held and/or vehicle-mounted VHF radios for local communications. The observance of radio etiquette is necessary to ensure efficient and available radio communications. Keep messages short and professional. For more information on proper radio etiquette, contact the communications group for your station.

Before leaving for a lengthy field deployment or even for a day, you must inform the communications center of your intentions. Frequencies and call signs are assigned, and daily check-in procedures are arranged. To avoid unnecessary search and rescue missions, every effort must be made to adhere to the established daily check-in. Immediately on returning from the field, inform the communications center that the party has returned safely.

Postal Services. U.S. domestic postal rates and regulations apply to all Air Post Office (APO) mail to New Zealand, McMurdo and South Pole Stations. There is no APO service to Palmer Station and the research vessels. More specific postal information is **detailed later in this chapter**. While postage stamps can be purchased at all 3 stations, participants should bring a supply of stamps with them.

All NSF and RPSC sponsored U.S. Antarctic Program participants are granted use of the U.S. Air Post Office (APO) in Christchurch for 10 days on arrival in New Zealand from the U.S. and again for 10 days on return to Christchurch from McMurdo Station. The Christchurch APO accepts N.Z. cash (not U.S.), travelers checks and personal checks.

You cannot order items via the Internet from Antarctica for courier delivery (i.e., FedEx) to the APO. The APO will not accept such deliveries. Alternatively, you can send mail and parcels through the New Zealand postal system at the international postage rate.

Mail is received in Christchurch, New Zealand, seven days a week. Letter mail is transported to from Christchurch to Antarctica on all available southbound flights. Letter mail service varies, generally taking 5 to 14 days, but sometimes longer depending on the time of year. Letter mail always takes priority over package mail both to and from Antarctica. Packages have the lowest priority of all cargo being transported to Antarctica resulting in a delivery time of up to 6 weeks. Please do not send perishable foods.

Packages destined for summer participants at McMurdo or South Pole should be mailed after Labor Day or they will be returned. Mail that misses summer participants is either forwarded (if a directory card has been given to the McMurdo post office), or returned to the sender.

There is no mail service to McMurdo or South Pole Stations during the winter. If you are wintering at these stations, advise friends and relatives that most parcels mailed after February 1 will not be received in Christchurch in time to be forwarded to you. Mail not received in time for forwarding to Antarctica before the winter isolation begins will be held for you until the next summer season.

The most cost-effective way to mail a parcel weighing more than 10 lbs. to Antarctica is parcel post. If you have a parcel that contains only videos, books or CDs it can be sent special fourth class "book rate," which is the lowest cost. Do not use "packing peanuts" and instead use clothing or something similarly useful and non-polluting to cushion the objects being mailed.

Do not rely on mail service for critical business. While mail services are provided and are fairly reliable, the timing for delivery is always subject to weather, transportation options, cargo space, forwarding and your movement between locations.

Marketing of clothing or other finished articles, printed or manufactured outside of Antarctica, requiring shipment or transportation to Antarctica is prohibited. **Usage of an APO address to mail articles for resale is not permitted.** This prohibition is based on federal law outlining the usage of the APO address.

The Postal Service prosecutes people who mail items improperly. The Postal Service states, "full

Postal Service IN Antarctica Depends on Your:

- Location
- Time of year
- Weather
- Available transportation

Read this section!

Do Not Mail

Chemicals, explosives,

Biological materials

Intoxicating liquor

Sharp instruments

Articles for resale

Odor-producing

materials

Drugs

flammable materials

responsibility rests with the mailer for any violation of law under Title 18, United States Code 1716, which may result from placing these items in the mail."

Remember, all mail going to McMurdo, South Pole and surrounding field camps is subject to customs, agricultural and drug inspections as it passes through Christchurch.

The **Do Not Mail** box on this page lists prohibited items. For a complete listing of prohibited/restricted items, ask your local post office to show you a copy of Publication 52, Acceptance of Hazardous, Restricted, or Perishable Matter, or go to: www.usps.com and conduct a search for Publication 52.

Hold in New Zealand. If you wish to have mail held for you in Christchurch, you must be either currently on station in Antarctica, within 90 days of arrival on station, or plan to redeploy within 10 days of the mail arrival. Your name will be checked against the computer database to verify your deployment dates. Please advise your correspondents to use this address:

c/o RPSC HOLD IN CHC APO AP 96531-1034

[Your Name] PSC 467 Box 296

All mail passing through Christchurch will be subject to MAF/Customs inspection. This includes duty on goods on mail being held in Christchurch.

Mail to/from New Zealand. If you are corresponding with New Zealand residents, have them use this address to avoid the unnecessary time and expense of having the letter go to the United States:

> [Your Name] McMurdo Station Air Post Office Private Bag 4747 Christchurch, New Zealand

This address is a courtesy and must not be used for ordering large quantities of personal goods. All mail must comply with USPS regulation (i.e., no alcohol). The Christchurch postmaster reserves the right to refuse goods deemed excessive.

NOTE: Goods must go through the New Zealand post system. Items delivered by any other agency (i.e., FedEx, UPS) will be refused. If you are in any doubt, seek advice from the postmaster in McMurdo or Christchurch before posting mail.

Philatelic mail. Philatelists (stamp collectors) are interested in receiving mail from Antarctica, and the National Science Foundation has a procedure (below) to support philately at a level not to interfere with the science mission.

While in Antarctica, you may receive unsolicited philatelic mail from collectors. The Foundation discourages this unauthorized philatelic activity, and you will be entirely within your rights in declining to respond to such unsolicited requests. Please discard the material in the appropriate recycling container.

If you receive large amounts of unsolicited philatelic mail, bring it to the attention of the station manager or the NSF Representative.

Philatelists may obtain a maximum of two covers (self-addressed stamped envelopes) a year by writing to the postal clerks (addresses below) at the three year-round U.S. Antarctic stations.

- 1. No more than two covers per person per station per year.
- 2. Covers will be processed for personal (that is, non-commercial) use of individuals only.
- 3. U.S. correspondents use domestic first-class postage for the APO addresses (below) and international first-class or air mail postage for the Palmer Station address.
- 4. Non-U.S. correspondents use international first-class or airmail postage.

Philatelic Mail Clerk McMurdo Station, Antarctica PSC 469 APO AP 96599-1035 Philatelic Mail Clerk Palmer Station, Antarctica c/o AGUNSA Deposito Franco Antartico P.O.Box 60-D Punta Arenas. Chile

Amundsen-Scott South Pole Station, Antarctica PSC 468 Box 400 APO AP 96598 Philatelic Mail Clerk

Covers are not processed if these guidelines are not followed. Philatelic mail is processed and returned to senders as soon as possible, but the processing is in addition to regular duties of station personnel. Some processing is done during the austral winter, when antarctic stations are isolated, resulting in year-long (or longer) delays in mailing covers back to the collectors.

STATIONS AND SHIPS

McMurdo Station

McMurdo (77°51'S, 166°40'E) is the main U.S. station in Antarctica. It is a coastal station on the barren low ash and lava volcanic hills at the southern tip of Ross Island, about 3,864 km (2,415 miles) south of Christchurch, New Zealand, and 1360 km (850 miles) north of the South



An aerial view
of McMurdo
Station, the
largest research
facility operated
by the U.S.
Antarctic
Program.

Pole. The original station was constructed in 1955-1956. With many additions and modernizations over the years, today's station is the primary logistics facility for airborne resupply of inland stations and for field science projects. The station is also the waste management center for much of the U.S. Antarctic Program. Year-round and summer science projects take place at McMurdo. A 4,320 square meter laboratory, the Albert P. Crary Science and Engineering Center, was completed in 1994. Other facilities are maintained for various studies.

The mean annual temperature is -18°C (0°F). Temperatures may reach 8°C (46°F) in summer and -50°C (-58°F) in winter. The average wind is 12 knots, but winds have exceeded 100 knots.

Approximately 90% of U.S. Antarctic Program

participants reside or pass through McMurdo Station. The austral winter population ranges from 150 to 200, and the summer population may exceed 1,100. The station is normally isolated from late February until early October, except for a brief period in August when several closely spaced flights (known as WINFLY, for winter flights) deliver personnel, supplies, and early science parties.

McMurdo has three airfields that are used at different times and for different reasons. Williams Field is a skiway 16 kilometers from McMurdo on the Ross Ice Shelf and is the aerodrome for skiequipped airplanes. The annual sea ice runway is used for wheeled airplanes and is a harder, smoother runway on sea ice, but it can be used only from late September through early December, before the sea ice softens and becomes un-usable. A permanent glacier blue-ice runway, the Pegasus site on the Ross Ice Shelf, can be used by wheeled planes but is farther from McMurdo than the other two airfields. McMurdo also has a heliport on the edge of town.

McMurdo Sound is an historic area. On his voyage of 1839-1840, James Clark Ross brought his ships *Erebus* and *Terror* into the sound before sailing eastward along the front of the great ice shelf that now bears his name. In 1901, Robert F. Scott wintered the *Discovery* in Winter Quarters Bay, adjacent to the station. A hut he built in 1901 still stands. Scott in 1901-1903 and 1910-1913 and Ernest Shackleton in 1907-1909 and 1914-1916 deployed their sledging parties from

the area. Other huts used by these expeditions, at Cape Royds and Cape Evans, still stand and are open on a limited basis for tours.

An active volcano, the 3,794-meter Mt. Erebus, is a landmark. On the west side of McMurdo Sound, the Royal Society Range and an extinct volcano, Mt. Discovery, are spectacular vistas.



The booklet *Recreational Walking Guide to Ross Island* gives information on the history of the McMurdo Sound area.

Housing at McMurdo Station is similar to college dormitories with a community bathroom down the hall in most dorms. Linens, blankets and pillows are provided, but a towel, slippers or shower shoes, and toiletry container are recommended. Participants are assigned at least one roommate. Those transiting through McMurdo to the South Pole or field camps will be assigned to transient housing in the bunkroom or 4 to a room. Due to round-the-clock operations, roommates may arrive at any time of the day or night.

EMERGENCY?

In an emergency, your family can get a message to you in Antarctica by calling RPSC headquarters in Denver (303.790.8606). Ask for Human Resources and explain that this is an emergency.

Diesel-driven generators provide **electrical power** at 120 volts, 60 hertz, the same as in the U.S. Reliability is good, but rare surges or outages could affect electronic equipment. Fresh water at McMurdo is made from sea water using reverse osmosis. Compared to taking it from a stream or a well, as we usually can do in the States, this is an expensive way to get fresh water.

Telephone calls can be made 24 hours a day from dorm rooms that have phones. Remember to bring a calling card for personal calls. Charges for these calls originate in Washington State. In other words, if you are placing a call to New York City, the charges will reflect a Washington state to NYC call. Business calls are made using an authorizing Personal Identification Number (PIN), assigned by your supervisor or, for grantees, the Crary Lab Supervisor. **Incoming calls** are restricted to USAP business.

Communication radios and pagers may be checked out through the communications department on station for business use.

Fax machine. Fax machines are available for limited use with permission of your supervisor. Grantees can use the Crary lab fax machine whenever needed.

E-mail and Internet access is available 24 hours a day. Due to bandwidth limitations, recreational downloads via web or point-to-point file sharing programs are blocked.



Grantees: Computers and LAN drops for personal laptops are available in the Crary Lab's Telesciences area, which all grantees have access to at all times. (Grantees can also make dialup connections from their dorm rooms using their own laptops). Both Macs and PCs are available in the Telesciences area, as is a scanner, a color printer and an E-size plotter. Grantees can download and send files from any networked machine in McMurdo, but bandwidth limitations (912k shared by 1,000+ people) can result in slow Internet connections and file transfer speeds. All computers in the Crary lab have CD burners, and DVD burners are available on request. Grantees will be allocated blank CDs and DVDs as specified in their Research Support Plan. Digital camera card readers are available in Telesciences.

PROHIBITED AT MCMURDO STATION AND SURROUNDING FIELD CAMPS

No streaming media without prior approval.

NOTE: McMurdo's bandwidth is overtaxed, making Internet connectivity extremely slow!

Mail. The post office at McMurdo offers all regular services (letter and package mail, money orders, stamps, etc.) and operates routine hours. It does not send COD mail. The post office only accepts U.S. cash and travelers checks. During the winter season it is closed because there is no transportation available. It does open during WINFLY.

Mail for WINFLY (mid-August) delivery should be sent after the first week in July or it will be returned. WINFLY transportation and space for parcel mail is limited. First priority is to wintering participants and then to those going to McMurdo dur-

ing WINFLY. If there is not space available for your package it will be held in Christchurch until space allows during Mainbody (October).

Packages destined for summer participants should be mailed **after Labor Day** or they will be returned.

Your address in McMurdo will be:



McMurdo Summer and Winter - Grantees:

[your name] McMurdo Station Project [insert your #] PSC 469 Box 800 APO AP 96599-1035



McMurdo Summer and Winter - RPSC Employees:

[your name], RPSC McMurdo Station PSC 469 Box 700 APO AP 96599-1035

There are 3 **television** channels and several **radio** feeds in McMurdo. Provided by American Forces Radio and Television Service (AFRTS), television offerings include live and taped news, sports and general entertainment programs. The radio stations combine popular music, news and local programming scheduled by volunteer DJs from the community. In addition, movies are programmed locally via cable television. Additional channels offer timely weather, transportation and other general community information. Many common areas are equipped with televisions and VCRs. Participants may wish to bring a small radio. A limited number of television sets are available via a lottery system for dorm rooms. A free video checkout library is operated by the Station Store.

There are **recreational facilities**, including a library, clubs, climbing wall/bouldering cave, gymnasium, weight room, aerobics room, band room and bowling alley. Volunteers frequently organize art shows, chili cook-offs, running races, yoga classes, dances, league play, lessons, lectures, etc. CDs, musical instruments, cross-country skis and other items are available for rental.

Laundry facilities and detergent are provided at no charge for personal use in the dormitories. Participants are responsible for washing linens and clothing.

Chaplain services are provided by a military Protestant chaplain and New Zealand Catholic priests, who rotate on one month intervals. In addition to conducting regular worship services and religious programs, the chaplain accommodates all religious practices and is available for counseling, both religious and secular. The chapel program provides opportunities for volunteers to use their gifts in ministry and service.

Food service at McMurdo Station is cafeteria style. There is no charge for meals. Take as much as you want, but, to minimize cost and the waste McMurdo has to manage, eat all of what you take. After dining, if the room is crowded, please leave to make room for others. Arrange with the food service management for takeout meals for those ill or on duty. In addition to the regular three meals, in summer a midnight meal is served first to night workers and then the general population.

The **McMurdo Clinic** provides health care on a walk-in basis during posted hours, 6 days a week. Walk-in hours are extended during busy summer months to accommodate shift workers. Hours are posted at the entry and on the TV information scroll. For emergencies, staff can be reached 24-hours by calling the fire dispatch emergency number. The facility is equipped to handle a wide range of minor illnesses and injuries, and to stabilize critical patients for evacuation. Services include x-ray, laboratory, pharmacy and nursing. During the summer season, a dentist is available by appointment to cover most dental emergencies. Physical therapy is available by referral only, for rehabilitation of injuries on station. During the winter season, the physician has limited capability to treat and manage dental and rehabilitation needs.

All injuries should be evaluated at the clinic. The physician will determine whether a Worker's

Compensation report should be filed, and provide information to the Safety Manager.

Vehicles at McMurdo are principally for support of science projects. They are assigned to investigators by the Mechanical Equipment Center (MEC). The vehicles are not for personal or recreational use. Report all mechanical problems promptly to the Vehicle Maintenance Facility.

Trash. It is the responsibility of all persons to keep the station presentable by properly sorting and disposing of packing materials and other trash, which is recycled to the extent practical. By entering a U.S. antarctic station, you automatically consent to abide by local procedures prescribed for waste management. See Waste Management in this chapter for some of the rules. Other details will be provided to you.

Albert P. Crary Science and Engineering Center (CSEC). This research center at McMurdo Station was dedicated in November 1991. The laboratory is named in honor of geophysicist and glaciologist Albert P. Crary (1911-1987), the first person to set foot on both the North and South Poles. It is sometimes referred to as the Crary Laboratory.

The laboratory contains state-of-the-art instruments and equipment to facilitate research and to advance science, technology, and education. It contains personal computers and workstations, and a local area network. It primarily supports funded investigators by providing laboratory space, analytical instrumentation, and staging areas for a wide range of scientific disciplines.

The Crary Lab has five pods built in three phases to make 4,320 square meters of working area. Some of the rooms and labs contained in the Crary Laboratory are: telescience room, computer room, conference rooms, lounge, analytical chemistry labs, general use labs, a storage/receiving and staging area, chemistry labs, microbiological labs, radioisotope lab, walk-in freezers, chemical storage, environmental rooms, field-party staging areas, electronics workshop, darkroom, ice and rock sectioning rooms, SAR ground station, an aquarium and holding tanks, and offices.

The laboratory is managed with direction from the NSF and advice from the McMurdo Area Users Committee (MAUC). The RPSC Manager of Laboratory Science ensures that operations comply with safety, environment, and health requirements. A chemical-hygiene plan is provided to users. The NSF urges users and visitors to take pride in the laboratory and to keep it clean and neat.

Amundsen-Scott South Pole Station

This station, at the geographic South Pole, is on the polar plateau at an elevation of 2,835 meters (9,300 ft). It is situated on a 2,700 meter (9,000 ft) thick plateau of ice. It is 850 nautical miles south of McMurdo. The station is drifting with the ice sheet at about 10 meters (33 ft) a year.

South Pole Station is supplied entirely by LC-130 airplanes from McMurdo Station, which operate only from late October through mid February. The station is isolated the rest of the year. The original station was built in 1956-1957. A replacement station was completed in 1975. It consists of an aluminum geodesic dome 17 meters high and 50 meters in diameter plus four large, steel archways connected by smaller steel arched passageways. In the dome, prefabricated vans house living quarters, a galley, a science center, a communications center, a post office, Station Store, and a library. As part of a safety upgrade, a new power generating plant, fuel depot, and maintenance shop were constructed under new and remodeled archways. Currently, a substantial multi-year modernization project is underway to replace the main facilities under the dome with a new above-surface station. In addition, two new buildings will be added to the remote science facilities and station satellite communications capabilities will be increased. The winter population varies from 70 to 80, and the summer population averages 220.

The mean annual **temperature** is -49°C (-56°F). Average monthly temperatures range between -28°C (-18°F) in the summer and -60°C (-76°F) in winter. The record high of -13.6°C (7.5°F) was recorded in December 1978, and the record low of -82.8°C (-117°F) was recorded 23 June 1982. Precipitation is about 20 centimeters of snow (8 centimeters water equivalent) per year, with very low humidity. Drifting is the primary factor in accumulation of snow around the buildings. Average wind speed is 10.8 knots.

Research includes astronomy and astrophysics, aeronomy auroral and radio-science studies,

meteorology, geomagnetism, earth-tide measurements, seismology and glaciology.

Telephone calls can be made from the South Pole during satellite coverage, currently 12 hours a day. Remember to bring a calling card for personal calls. Charges for these calls originate in Denver, Colorado. In other words, if you are placing a call to New York City, the charges will reflect a Denver to NYC call. Science, business and emergency related calls can be made with an Iridium phone during times of no satellite coverage. Incoming emergency calls must be routed through RPSC or the NSF.

Fax Machine. There currently is no fax machine service available at South Pole. Scanned images of documents are transmitted via e-mail to eFax, a company who in turn faxes the document to the recipient. For incoming service, faxes are sent to eFax, who then e-mails it to the Pole, where it is printed.

E-mail and Internet access is available only during satellite coverage, currently 12 hours a day. **Mail.** South Pole has an official U.S. Post Office. However, it does not offer any registered services or sell money orders. Mail is placed aboard resupply airplanes and routed through McMurdo Station.

Packages destined for summer participants should be mailed **after Labor Day** or they will be returned.

Your address at South Pole (both summer and winter) will be:

[your name, Project # or RPSC] South Pole Station PSC 468 Box 400 APO AP 96598

Ham radio (amateur radio) connections are also available for calls to the United States. Schedules depend on volunteer operator availability and signal conditions but are usually announced. Calls are placed over the ham radio and patched into the phone system from the operator's location in the U.S. Charges will be for a collect call from the operator's location to the party being called. Remember that these are not private conversations and some business discussions (banking, for example) are not permitted.

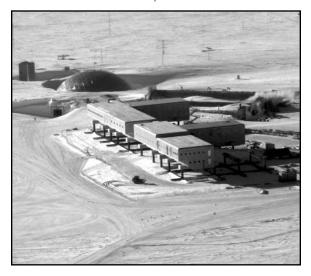
Meals. Food service at the South Pole is cafeteria style. There is no charge for meals. Take as much as you want, but eat all of what you take. Remember, every piece of food thrown in the garbage has to be flown out of Pole. Arrange with the food service management for takeout meals for those ill or on duty. In addition to the regular three meals, in summer a midnight meal is served first to night workers and then the general population. Volunteers provide assistance on special occasions.

Household duties (chores) are shared by all personnel on a rotating basis.

The Station Store stocks very limited supplies of toiletries and alcoholic beverages. A large variety and quantity of Antarctic and South Pole souvenirs are available for purchase. Only cash and travelers checks are accepted at the store.

ATMs are not available at the South Pole due to the limited satellite availability. RPSC employees are able to have funds taken out of their bi-weekly paychecks and obtain this money while on station. Grantees are able to cash up to \$500 in personal checks at the store each month.

Housing. Housing facilities at the South Pole are very limited. Many summer participants are housed in what is referred to as Summer Camp, which consists of Jamesways (canvas Quonset Huts) and Hypertats (highly insulated modular buildings similar to Quonset Huts). Rooms are somewhat private and measure approximately 6x8 feet. Bathrooms and showers are available in three separate buildings (therefore, if you need to use the bathroom, you will need to put on your parka and boots to get there) and each has a male and female side. Rooms also are being used in



An aerial view of the new elevated station being built at Amundsen-Scott South Pole Station.

the new elevated station. These rooms are generally single rooms with community shower and bathroom facilities for male and female. With three working shifts at South Pole during the summer, there is always someone trying to sleep. Please be aware of the noise level as courtesy and consideration is a must.

Water conservation at South Pole Station is critical. Participants are limited to 2 two-minute showers each week.

Laundry facilities and detergent are provided free of charge, but due to water conservation, participants are only allowed one load of laundry each week.

Recreational facilities include a library, pool table, ping-pong, darts, cards, videos, etc. There is a small gymnasium, weight room, and a sauna.

A **physician**, with emergency dental training, is accessible on station at all times. Unless it is an emergency, please call the clinic in advance to ensure the doctor is available.

Altitude sickness. Amundsen-Scott South Pole Station is at a physiological elevation above 3,000 meters (10,000 feet). The flight from McMurdo doesn't allow time to acclimate en route. You should check with your doctor to see if living at the high altitude will affect any preexisting medical problem. A medicine called Diamox will be available at McMurdo Clinic. Treatment should begin 24 hours before leaving for the high altitude. This medicine is contraindicated for those allergic to sulfa medications. The signs of altitude sickness are shortness of breath that is not relieved promptly by resting, headache, dizziness, and difficulty sleeping. They can be minimized by avoiding strenuous activities the first two days, increasing fluid intake, stopping or limiting smoking, and avoiding alcohol and caffeine. Altitude sickness can occur as late as five days after reaching altitude, and occasionally, can progress to a serious medical condition requiring evacuation to a lower altitude. Anyone developing symptoms should see the local medical provider.

The South Pole Users' Committee (SPUC) provides RPSC with feedback and suggestions on staffing, facilities and the policies that guide South Pole operations. The SPUC may recommend improvements and suggest the relative priority of their recommendations of the South Pole Research site. Members (9) of SPUC represent the wide range of science activities at the South Pole Station, with particular emphasis on those activities with current or previous NSF/OPP support for research at South Pole Station.

Palmer Station

Although the U.S. has had long historical ties to the Antarctic Peninsula, it did little work there until 1965 when a small biology facility, Palmer Station, was established. It is named after Nathaniel B. Palmer, the American sealer who pioneered exploration of the Peninsula area in 1820. In 1970 the new and current station was completed on Anvers Island, at 64°46'S, 64°03'W. The station, built on solid rock, consists of two major buildings and three small ones plus two large fuel tanks and a dock.

Ship access is usually year-round. Foreign, tour ships, and sailing yachts visit frequently during the summer months. Palmer is not regularly served by airplane, and no permanent landing field is maintained there.

Wildlife at Palmer Station is abundant which makes it superbly located for biological studies of birds, seals, and other components of the marine ecosystem. It has a pier and facilities for the research vessels that support logistics and research in the marine sciences. It has a large and extensively equipped laboratory and sea water aquarium. Meteorology, upper atmosphere physics, glaciology, seismology, and geology have also been pursued at and around Palmer Station. The immediate vicinity is a dedicated Long Term Ecological Research (LTER) site. As with elsewhere in Antarctica, all interactions with wildlife are strictly governed by the Antarctic Conservation Act.

Station **population** is approximately 44 in the summer and 20 or more in winter. Unlike South Pole and McMurdo Stations, Palmer usually receives transportation year-round and does not have a distinctive period of winter isolation.

Housing at Palmer Station is similar to college dormitories with community bathrooms down

the hall. Linens, blankets and pillows are provided. Participants are assigned a roommate. Washing machines, dryers and detergent are provided free of charge. There is also a sauna. Everyone at the station participates in household duties such as cleaning the common areas.

Palmer's climate is milder than that of the other U.S. antarctic stations primarily because it



Palmer Station is the smallest of the three research stations operated by the U.S. Antarctic Program.

comes under the influence of a polar-maritime air mass. The mean annual temperature is -3° C (27°F). Average temperatures range between 2°C (36°F) in the summer and -10° C (14°F) in the winter. The annual average wind is about 10 knots. Compared to other U.S. Antarctic Program stations, precipitation is high. Compared to other U.S. Antarctic Program stations precipitation is high, with ample rainfall. The water equivalent in snow and rain averages 81 cm (32 inches) per year.

Water conservation is encouraged but usage is not restricted.

Vehicles consist mainly of Zodiac boats, snowmobiles and allterrain vehicles.

Training is required before participants are allowed in Zodiacs on the water. Depending on your position you may be required to complete *Boating I, Boating II, or The Islands Course* which covers the location of survival caches, signaling, radio operations, survival skills, cold water immersion, etc.

Science. The science resources at Palmer Station are managed with direction from the NSF, which includes input from the Palmer

Area Users Committee (PAUC). It is the responsibility of the RPSC Manager of Laboratory Science to ensure that operations comply with safety, environment and health requirements. All users are provided with a chemical hygiene plan. The NSF urges users and visitors to keep the laboratory spaces clean and safe.

There is no live TV or radio, but videos and DVDs are available for viewing in the lounge area.

Telephone calls can be made from Palmer Station 24 hours a day. Remember to bring a calling card for personal calls. Charges for these calls originate in Denver, Colorado. In other words, if you are placing a call to New York City, the charges will reflect a Denver to NYC call. Friends and family can contact you via the station's main number which also originates in Denver: 720-568-2775.

Fax machines are available for limited use with permission of your supervisor.

E-mail and Internet access is available 24 hours a day.

Mail. There is no APO service available to South America or Palmer Station. The station has no post office, but accepts and distributes letters and packages. Mail reaches Palmer Station on each southbound vessel, about once a month. Friends and family should send letters about 2 weeks in advance of the ship's scheduled departure from Punta Arenas. Package mail sent through Port Hueneme should be mailed at least 3 weeks ahead of the scheduled departure.

Flat/Letter Mail (first class mail and magazines) and Small Parcels (less than 2 lbs.) should be sent to the RPSC office address.

Small parcels must include a detailed packing list on the outside of the box before they can be forwarded to the station. The packing list should include a list of contents and estimated value along with contact information for the sender. Parcels will be forwarded to the station on a space-available basis and may be forwarded to Port Hueneme for shipment if they exceed the size limits. Since packages travel through customs in the U.S. and Chile, it is possible that they'll be opened in transit.

your name]
[Palmer Station or Vessel Name]
c/o Raytheon Polar Services Company
7400 S. Tucson Way
Centennial, CO 80112-3938

[Palmer Station or Vessel Name]

Package Mail should be sent to Port Hueneme for shipment via the USAP Cargo System. Package mail may be sent to the U.S. Antarctic Program cargo facility in Port Hueneme, California, for delivery to Punta Arenas, Palmer Station, or the research vessels. This method is relatively inexpensive, but **cannot be used for letter mail** (use the Denver office method). Packages sent via Port Hueneme may require two months or longer for delivery to Punta Arenas because packages are sent surface shipment on commercial vessels.

Packages sent via Port Hueneme become international cargo and as such are subject to the applicable laws and regulations which govern these shipments. These regulations are numerous and require that shipments be certified as hazardous or not. Packages cannot be sent without a declaration of contents and value. You must provide a packing list on both the inside and outside of each package. Failure to provide accurate packing lists will result in rejection of the package and its return to sender.

Your packing list must show the following information:

- 1. Sender's name and address
- 2. Final destination of the package (your name and location)
- 3. Itemized list of the contents and their value

There are two addresses for Port Hueneme depending on the shipping method:

Via the US Postal Service:	Via All Other Carriers (FedEx, UPS, DHL, etc.):	
NSF Contractor Representative	NSF Contractor Representative	
P.O. Box 338	Building 471 North End	
Port Hueneme, CA 93041	USN-CBC	
Forward to:	Port Hueneme, CA 93043	
[Your Name]	Forward to:	
[Palmer Station or Vessel Name]	[Your Name]	

NOTE: If you are placing **catalog or Internet** orders to be shipped to the station, use the appropriate address above and send an e-mail to Port Hueneme letting them know that the package is coming. This will avoid confusion and delays in shipment. Your message should include the vendor name, package contents, your name, final destination and tracking numbers (if known). E-mail: lee.degalan@usap.gov

Flat and Package Mail can be shipped directly to Chile via Chilean Postal Service, however this method can be unreliable and very slow. Mail can be forwarded to the station or vessels or it can be held for you in Punta Arenas depending on how it is labeled. The address is:

> [Your Name]Palmer Station, Antarctica c/o AGUNSA Deposito Franco Antarctico Av. Independencia 772 P.O. Box 60-D Punta Arenas, Chile

A **physician**, with emergency dental training, is accessible on station at all times. Unless it is an emergency, please call the clinic in advance to ensure the doctor is available.

Meals are prepared by a cook and assistant. Clean-up is done on a rotating schedule by all Palmer Station residents.

Recreation opportunities are available. There is an exercise room with weights and cardio machines. There is also a self-service bar, a TV lounge, billiard and ping pong tables, etc. There are some arts and craft supplies available as well as a limited selection of cross-country skis and snowshoes. The station also has a small darkroom that can be used for recreation. Boating (after training has been completed) is available as weather permits and is a popular way to enjoy the wildlife in the area.

A small **Station Store** stocks a limited supply of toiletries, souvenirs and beverages.

Research Vessels

The *R/V Nathaniel B. Palmer (NBP)* began science operations in late 1992 when it sailed from Punta Arenas, Chile, in support of the Russian-United States Ice Camp Weddell. Since then, the 95-meter NBP has sailed more than 90 science cruises and is now into its second long-term charter in support of USAP marine science research.

The NBP's main engines provide a total horsepower of 12,720. This rating, along with hull strength and other criteria, combine to qualify it for classification by the American Bureau of Shipping (ABS) as an ABS A2 icebreaker (able to break 3 feet of ice at a continuous forward speed of 3 knots). A modern multi-disciplinary research vessel, the NBP has eight laboratories totaling 515 square meters. It can accommodate 32 scientists on cruises as long as 75 days.

The NBP has worked in many areas of the Southern Ocean, including the Ross and Weddell Seas, the Bransfield Strait, and has completed two circumnavigations of Antarctica in support of USAP research projects.



The research vessel
Nathaniel B. Palmer is an
ice-breaking ship used for
scientific research by the
U.S. Antarctic Program.

The *R/V Laurence M. Gould (LMG)*, completed in December 1997 as a replacement for the *R/V Polar Duke*, began its service in Antarctica on 16 January 1998. Since then, the LMG has sailed in support of more than 50 science cruises. This ABS A1, 70.1-meter ship, has an available horsepower of 4,576 in open water operations and 3,900 horsepower during operations in ice. The A1 rating classifies the LMG as being capable of breaking one foot of first-year ice while maintaining continuous forward progress. Like the NBP, this vessel has an endurance of 75 days and a range of 12,000 nautical miles at 12 knots.

The LMG works primarily in the Antarctic Peninsula region, transporting support and scientific personnel and cargo to and from Palmer Station and supporting research throughout the peninsula area. Voyages are also made farther afield, including the Weddell Sea.

Both vessels are equipped with an enclosed Baltic Room, a diverse sonar suite, a specially designed aquarium room, moon pool, and an uncontaminated seawater system delivering water to several labs. The NBP seawater supply is also available on the 03 Level's Helo Deck.

Both the NBP and LMG are owned and operated by Louisiana-based Edison Chouest Offshore (ECO) and were built by North American Ship Building, a subsidiary of ECO located in Larose, Louisiana.

Living conditions on the research vessels include two-person cabins; private toilets and showers are available in each cabin. Each ship has laundry facilities, exercise rooms, and TV lounges with DVDs and videos. Cafeteria-style meals are provided. Be aware that travel on the U.S. Antarctic Program research vessels often involves passing through some of the roughest seas in the world. If you are prone to motion sickness or have never sailed before, consult with your personal physician for the appropriate medication before you leave home.

E-mail is available on both ships and is sent and received at least twice daily. The message size and the use of the attachments in e-mail from the vessels is limited and there is no Internet connection available while at sea. Please consult your point-of-contact for the current vessel e-mail policy.

Telephone service via the Iridium satellite phone system is available for personal use via reasonably priced Iridium calling cards that can be purchased once onboard. INMARSAT is also available 24 hours a day-but at a high cost (approximately \$5 a minute). Personal calls via INMARSAT must be placed using a credit card.

Mail to participants on the research vessels can be routed through the husbanding agent (AGUNSA) in Punta Arenas. Please consult the mail information described under Palmer Station to find appropriate mailing addresses. For cruises originating in New Zealand or elsewhere, please

consult your point-of-contact for mailing instructions.

Vessel sailing schedules can be viewed at: www.usap.gov.

FACILITY ADMINISTRATION

The NSF, a federal agency, plans, funds, manages, and coordinates the U.S. Antarctic Program in accordance with U.S. Government policy.

The Department of Defense (U.S. Air Force, Air National Guard, Army, Military Sealift Command, and Air Mobility Command) and the Department of Transportation (Coast Guard) provide logistics, as requested by the NSF, on a reimbursable basis. The NSF contracts with RPSC for operation of the research ships and stations, and for facilities planning and construction, and for logistics services.

Senior U.S. Representative in Antarctica. The Director of the National Science Foundation has designated the Office Director, Office of Polar Programs, as the Senior U.S. Representative in Antarctica, or SUREPA. During the austral summer operating season, the Office Director sometimes designates ranking officials of the U.S. Antarctic Program to serve as Senior U.S. Representative in Antarctica. The official designated is normally located at McMurdo Station during the summer operating season. The Senior U.S. Representative ensures that U.S. policy and directives for the U.S. Antarctic Program are implemented, represents the U.S. as it interacts with foreign nations in Antarctica, ensures that U.S. sponsored antarctic activities are carried out consistent with the Antarctic Treaty, and takes appropriate action in personnel matters not subject to military or other authority. At McMurdo, the SUREPA's office is located in the NSF Chalet.

NSF Representative, Antarctica. The NSF Representative, Antarctica, is on the continent throughout the austral summer and is the Foundation's principal representative for implementing the planned field operations. He/she coordinates and establishes on-site priorities for field support of U.S. Antarctic Program activities, coordinates the supervision and direction of the NSF contractor's efforts at McMurdo and the inland sites, and serves as an NSF spokesperson. The NSF Representative has an office located in the Chalet at McMurdo Station.

NSF Science Representative. The NSF Science Representative, Antarctica, the Foundation's principal representative for antarctic science activities, interacts with investigators and the NSF Representative to set science-support priorities, give on-site direction to the RPSC laboratory services manager on science matters, and serve as the NSF science spokesperson. The position is occupied by different NSF science program managers over the course of the summer. At McMurdo Station the NSF Science Representative has an office in the Albert P. Crary Science and Engineering Center.

NSF McMurdo Station Manager. The NSF McMurdo Station Manager is a year-round position at McMurdo whose function is to oversee operation of station facilities. The manager interacts with all organizations represented at McMurdo. In winter, the NSF manager is the ranking U.S. Government official at McMurdo.

Commander, Support Forces Antarctica (CSFA) is the commander of Department of Defense support forces in the U.S. Antarctic Program and is the commander of Air National Guard Detachment 13 in Christchurch, New Zealand.

NSF Representative, Antarctic Peninsula. The NSF Representative, Antarctic Peninsula, is resident at Palmer Station or aboard research vessels during a part of the austral summer. This person coordinates U.S. activities in the Peninsula area.

NSF Representative, South Pole is resident at South Pole Station during a part of the austral summer. This person coordinates U.S. activities at South Pole Station.

RPSC Area Director. RPSC has an Area Director at McMurdo Station and South Pole Station during the austral summer. This person, in conjunction with the Senior RPSC Representative, oversees all contractor support activities. The RPSC Winter Site Manager serves in this role during the winter months.

Station Science Leader. The National Science Foundation designates a science leader for U.S. Antarctic Program stations. The Station Science Leader is directly responsible to the Office of Polar Programs when no NSF Representative is on the continent. Researchers at each station, or working out of the station, are responsible to the Station Science Leader, who coordinates science projects and arranges for the logistics needed to support them. Researchers request support from the Station Science Leader during the winter, who consults with the NSF McMurdo Station Manager (at McMurdo) or the Station Manager (at South Pole or Palmer Stations) to arrange the support. The Station Science Leader clears official messages concerning research projects before dispatch.

RPSC Winter Site Manager. This position is responsible for all station support activities including local support for science projects. At McMurdo Station, the NSF Station Manager is designated as the senior official on station. At South Pole and Palmer, the Winter Site Manager and support personnel maintain the station and support the research projects. In an emergency, the Winter Site Manager is in complete charge of everyone at the station.

Marine Project Coordinators are provided by RPSC on both the *R/V Nathaniel B. Palmer* and the *R/V Laurence M. Gould.* RPSC provides Marine Projects Coordinators (MPC) on both vessels, who coordinate and direct shipboard activities in conjunction with the Ship's Master. The MPC and the Ship's Master make all decisions regarding the safe conduct of the ship.

User Committees. RPSC convenes an annual McMurdo Area User Committee (MAUC), a South Pole User Committee (SPUC), an Antarctic Research Vessel Oversight Committee (ARVOC) and a Palmer Area User Committee (PAUC) to review the effectiveness of the various Antarctic laboratories. These committees review input collected from grantees, NSF representatives, RPSC Laboratory Managers, etc., to assess safety, environment and health requirements, space allocation, scheduling, equipment status, staffing, communications, computing and to plan operational requirements for the coming season. ■

APPENDIX A:

The Antarctic Treaty

The 12 nations listed in the preamble (below) signed the Antarctic Treaty on 1 December 1959 in Washington, D.C. The treaty entered into force on 23 June 1961; the 12 signatories became the original 12 consultative nations.

As of mid-2002, 15 additional nations (Brazil, Bulgaria, China, Ecuador, Finland, Germany, India, Italy, Netherlands, Peru, Poland, Republic of Korea, Spain, Sweden, and Uruguay) have achieved consultative status by acceding to the treaty, and by conducting substantial scientific research in Antarctica. Russia carries forward the signatory privileges and responsibilities established by the former Soviet Union.

Another 18 nations have acceded to the Antarctic Treaty: Austria, Canada, Colombia, Cuba, Czech Republic, Democratic Peoples Republic of Korea, Denmark, Estonia, Greece, Guatemala, Hungary, Papua New Guinea, Romania, Slovak Republic, Switzerland, Turkey, Ukraine and Venezuela. These nations agree to abide by the treaty and may attend consultative meetings as observers.

The 45 Antarctic Treaty nations represent about two-thirds of the world's human population. Consultative meetings have been held approximately every other year since the treaty entered into force, but since 1993 they typically have been held annually. Each meeting has generated recommendations regarding operation of the treaty that, when ratified by the participating governments, become binding on the parties to the treaty.

Additional meetings within the Antarctic Treaty system have produced agreements on conservation of seals, conservation of living resources, and comprehensive environmental protection. *A Handbook of the Antarctic Treaty System* at the NSF web site (www.nsf.gov/od/opp) contains these documents.

What follows is the complete text of the Antarctic Treaty. The headings for each article were added by the National Science Foundation and are unofficial.

[Preamble]

The Governments of Argentina, Australia, Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, The Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America.

Recognizing that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Acknowledging the substantial contributions to scientific knowledge resulting from international cooperation in scientific investigation in Antarctica;

Convinced that the establishment of a firm foundation for the continuation and development of such cooperation on the basis of freedom of scientific investigation in Antarctica as applied during the International Geophysical Year accords with the interests of science and the progress of all mankind;

Convinced also that a treaty ensuring the use of Antarctica for peaceful purposes only and the

continuance of international harmony in Antarctica will further the purposes and principles embodied in the Charter of the United Nations;

Have agreed as follows:

Article I [Antarctica for peaceful purposes only]

- Antarctica shall be used for peaceful purposes only. There shall be prohibited, inter alia, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons.
- The present treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purposes.

Article II

[freedom of scientific investigation to continue]

Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty.

Article III [plans and results to be exchanged]

1. In order to promote international cooperation

in scientific investigation in Antarctica, as provided for in Article II of the present Treaty, the Contracting Parties agree that, to the greatest extent feasible and practicable:

- (a) information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations;
- (b) scientific personnel shall be exchanged in Antarctica between expeditions and stations:
- (c) scientific observations and results from Antarctica shall be exchanged and made freely available.
- In implementing this Article, every encouragement shall be given to the establishment of cooperative working relations with those Specialized Agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

Article IV [territorial claims]

- Nothing contained in the present Treaty shall be interpreted as:
 - (a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty in Antarctica;
 - (b) a renunciation or diminution by any Contracting Party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise:
- No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty shall be asserted while the present Treaty is in force.

Article V [nuclear explosions prohibited]

- 1. Any nuclear explosions in Antarctica and the disposal there of radioactive waste materials shall be prohibited.
- In the event of the conclusion of international agreements concerning the use of nuclear energy, including nuclear explosions and the disposal of radioactive waste material, to which all of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX are parties, the rules established under such agreements shall apply in Antarctica.

Article VI [are covered by Treaty]

The provisions of the present Treaty shall apply to the area south of 60Þ South latitude, including

all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

Article VII [free access for observation and inspection]

- 1. In order to promote the objectives and ensure the observation of the provisions of the present Treaty, each Contracting Party whose representatives are entitled to participate in the meetings referred to in Article IX of the Treaty shall have the right to designate observers to carry out any inspection provided for by the present Article. Observers shall be nationals of the Contracting Parties which designate them. The names of the observers shall be communicated to every other Contracting Party having the right to designate observers, and like notice shall be given of the termination of their appointment.
- 2. Each observer designated in accordance with the provisions of paragraph 1 of this Article shall have complete freedom of access at any time to any or all areas of Antarctica.
- All areas of Antarctica, including all stations, installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica, shall be open at all times to inspection by any observers designated in accordance with paragraph 1 of this Article.
- 4. Aerial observation may be carried out at any time over any or all areas of Antarctica by any of the Contracting Parties having the right to designate observers.
- Each Contracting Party shall, at the time when the present Treaty enters into force for it, inform the other Contracting Parties, and thereafter shall give them notice in advance, of
 - (a) all expeditions to and within Antarctica, on the part of its ships of nationals, and all expeditions to Antarctica organized in or proceeding from its territory;
 - (b) all stations in Antarctica occupied by its nationals; and
 - (c) any military personnel or equipment intended to be introduced by it into Antarctica subject to the conditions prescribed in paragraph 2 of Article I of the present Treaty.

Article VIII [personnel under jurisdiction of their own states]

 In order to facilitate the exercise of their functions under the present Treaty, and without prejudice to the respective positions of the Contracting Parties relating to jurisdiction over

- all other persons in Antarctica, observers designated under paragraph 1 of Article VII and scientific personnel exchanged under subparagraph 1(b) of Article III of the Treaty, and members of the staffs accompanying any such persons, shall be subject only to the jurisdiction of the Contracting Party of which they are nationals in respect to all acts or omissions occurring while they are in Antarctica for the purpose of exercising their functions.
- 2. Without prejudice to the provisions of paragraph 1 of this Article, and pending the adoption of measures in pursuance of subparagraph 1(e) of Article IX, the Contracting Parties concerned in any case of dispute with regard to the exercise of jurisdiction in Antarctica shall immediately consult together with a view to reaching a mutually acceptable solution.

Article IX [Treaty states to meet periodically]

- 1. Representatives of the Contracting Parties named in the preamble to the present Treaty shall meet at the city of Canberra within two months after date of entry into force of the Treaty, and thereafter at suitable intervals and places, for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering, and recommending to their Governments, measures in furtherance of the principles and objectives of the Treaty including measures regarding:
 - (a) use of Antarctica for peaceful purposes only;
 - (b) facilitation of scientific research in Antarctica;
 - (c) facilitation of international scientific cooperation in Antarctica;
 - (d) facilitation of the exercise of the rights of inspection provided for in article VII of the Treaty;
 - (e) questions relating to the exercise of jurisdiction in Antarctica;
 - (f) preservation and conservation of living resources in Antarctica.
- 2. Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as the Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the dispatch of a scientific expedition.
- 3. Reports from the observers referred to in Article VII of the present Treaty shall be transmitted to the representatives of the Contracting

- Parties participating in the meetings referred to in paragraph 1 of the present Article.
- 4. The measures referred to in paragraph 1 of this Article shall become effective when approved by all the Contracting Parties whose representatives were entitled to participate in the meetings held to consider those measures.
- 5. Any or all of the rights established in the present Treaty may be exercised as from the date of entry into force of the Treaty whether or not any measures facilitating the exercise of such rights have been proposed, considered or approved as provided in this Article.

Article X [discourages activities contrary to Treaty]

Each of the Contracting Parties undertakes to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty.

Article XI [settlement of disputes]

- If any dispute arises between two or more of the Contracting Parties concerning the interpretation or application of the present Treaty, those Contracting Parties shall consult among themselves with a view to having the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.
- 2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement; but failure to reach agreement on reference to the International Court shall not absolve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means referred to in paragraph 1 of this Article.

Article XII [review of Treaty possible after 30 years]

- (a) The present Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX. Any such modification or amendment shall enter into force when the depositary Government has received notice from all such Contracting Parties that they have ratified it.
 - (b) Such modification or amendment shall thereafter enter into force as to any other Contracting Party when notice of ratification by it has been received by the depositary Government. Any such Contracting Party from which no notice of ratification is received within a period of two years from the date of entry into force of the

- modification or amendment in accordance with the provision of subparagraph 1(a) of this Article shall be deemed to have withdrawn from the present Treaty on the date of the expiration of such period.
- 2. (a) If after the expiration of thirty years from the date of entry into force of the present Treaty, any of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX so requests by a communication addressed to the depositary Government, a Conference of all the Contracting Parties shall be held as soon as practicable to review the operation of the Treaty.
 - (b) Any modification or amendment to the present Treaty which is approved at such a Conference by a majority of the Contracting Parties there represented, including a majority of those whose representatives are entitled to participate in the meetings provided for under Article IX, shall be communicated by the depositary Government to all the Contracting Parties immediately after the termination of the Conference and shall enter into force in accordance with the provisions of paragraph 1 of the present Article.
 - (c) If any such modification or amendment has not entered into force in accordance with the provisions of subparagraph 1(a) of this Article within a period of two years after the date of its communication to all the Contracting Parties, any Contracting Party may at any time after the expiration of that period give notice to the depositary Government of its withdrawal from the present treaty; and such withdrawal shall take effect two years after the receipt of the notice by the depositary Government.

Article XIII [ratification and accession]

 The present Treaty shall be subject to ratification by the signatory States. It shall be open for accession by any State which is a Member of the United Nations, or by any other State which

- may be invited to accede to the Treaty with the consent of all the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX of the Treaty.
- Ratification of or accession to the present Treaty shall be effected by each State in accordance with its constitutional processes.
- Instruments of ratification and instruments of accession shall be deposited with the Government of the United States of America, hereby designated as the depositary Government.
- 4. The depositary Government shall inform all signatory and acceding States of the date of each deposit of an instrument of ratification or accession, and the date of entry into force of the Treaty and of any modification or amendment thereto.
- 5. Upon the deposit of instruments of ratification by all the signatory States, the present Treaty shall enter into force for those States and for States which have deposited instruments of accession. Thereafter the Treaty shall enter into force for any acceding State upon the deposit of its instrument of accession.
- The present Treaty shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

Article XIV [United States is repository]

The present Treaty, done in the English, French, Russian, and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transit duly certified copies thereof to the Governments of the signatory and acceding States.

In witness whereof, the undersigned Plenipotentiaries, duly authorized, have signed the present Treaty.

Done at Washington the first day of December, one thousand nine hundred and fifty-nine.

For Argentina: Adolfo Seilingo F. Bello

For Australia: Howard Beale

For Belguim: *Obert de Thieusies*

For Chile:

Marcial Mora M. L. Gajardo V. Julio Escudero For the French Republic: Pierre Charpentier

For Japan: Koichiro Asakai

T. Shimoda

For New Zealand:
G.D.L. White

For Norway: Paul Koht

For the Union of South Africa: Wentzel C. du Plessis

For the Union of Soviet Socialist Republics:

V. Kuznetsov

For the United Kingdom of Great Britain and Northern Ireland:

Harold Caccia

For the United States America: *Herman Phleger Paul C. Daniels*

APPENDIX B:

Presidential Memorandum Regarding Antarctica, February 5, 1982

Memorandum 6646

The White House Washington

For:

Secretary of State
Secretary of the
Treasury
Secretary of Defense
Secretary of the Interior

Secretary of Commerce Secretary of

Transportation
Secretary of Energy

Director, Office of Management and Budget

Director of Central Intelligence

Chairman, Joint Chiefs of Staff

Director, Arms Control and Disarmament Agency

Director, Office of Science and Technology Policy

Administrator, Environmental Protection Agency

Director, National Science Foundation

Subject: United States Antarctic Policy and Programs

I have reviewed the Antarctic Policy Group's study of United States interests in Antarctica and related policy and program considerations, as forwarded by the Department of State on November 13, 1981, and have decided that:

- The United States Antarctic Program shall be maintained at a level providing an active and influential presence in Antarctica designed to support the range of U.S. antarctic interests.
- This presence shall include the conduct of scientific activities in major disciplines; year-round
 occupation of the South Pole and two coastal stations; and availability of related necessary
 logistics support.
- Every effort shall be made to manage the program in a manner that maximizes cost effectiveness and return on investment.

I have also decided that the National Science Foundation shall continue to:

- budget for and manage the entire United States national program in Antarctica, including logistic support activities so that the program may be managed as a single package;
- fund university research and federal agency programs related to Antarctica;
- draw upon logistic support capabilities of government agencies on a cost reimbursable basis;
 and
- use commercial support and management facilities where these are determined to be cost effective and will not, in the view of the Group, be detrimental to the national interest.

Other agencies, may, however, fund and undertake directed short-term programs of scientific activity related to Antarctica upon the recommendation of the Antarctic Policy Group and subject to the budgetary review process. Such activities shall be coordinated within the framework of the National Science Foundation logistics support.

The expenditures and commitment of resources necessary to maintain an active and influential presence in antarctica, including the scientific activities and stations in the Antarctic, shall be reviewed and determined as part of the normal budget process. To ensure that the United States Antarctic Program is not funded at the expense of other National Science Foundation programs, the OMB will provide specific budgetary guidance for the antarctic program.

To ensure that the United States has the necessary flexibility and operational reach in the area, the Departments of Defense and Transportation shall continue to provide, on a reimbursable basis, the logistic support requested by the National Science Foundation and to develop, in collaboration with the Foundation, logistic arrangements and cost structure required for effective and responsive program support at minimum cost.

With respect to the upcoming negotiations on a regime covering antarctic mineral resources, the Antarctic Policy Group shall prepare a detailed U.S. position and instructions. These should be forwarded for my consideration by May 15, 1982.

Ronald Reagan

APPENDIX C:

Historic Monuments in Antarctica

- **1. Flag mast** erected in December 1965 at the South Geographical Pole by the First Argentine Overland Polar Expedition.
- 2. Rock cairn and plaques at Syowa Station (Lat 69°00'S, Long 39°35'E) in memory of Shin Fukushima, a member of the 4th Japanese Antarctic Research Expedition, who died in October 1960 while performing official duties. The cairn was erected on 11 January 1961, by his colleagues. Some of his ashes repose in the cairn.
- **3. Rock cairn and plaque** on Proclamation Island, Enderby Land, erected in January 1930 by Sir Douglas Mawson (Lat 65°51'S, Long 53°41'E) The cairn and plaque commemorate the landing on Proclamation Island of Sir Douglas Mawson with a party from the British, Australian and New Zealand Antarctic Research Expedition of 1929-31
- **4. Station building** to which a bust of V.I. Lenin is fixed, together with a plaque in memory of the conquest of the Pole of Inaccessibility by Soviet Antarctic explorers in 1958 (Lat 83°06'S, Long 54°58'E).
- **5. Rock cairn and plaque** at Cape Bruce, Mac.Robertson Land, erected in February 1931 by Sir Douglas Mawson (Lat 67°25'S, Long 60°47'E). The cairn and plaque commemorate the landing on Cape Bruce of Sir Douglas Mawson with a party from the British, Australian and New Zealand Antarctic Research Expedition of 1929-
- **6. Rock cairn** at Walkabout Rocks, Vestfold Hills, Princess Elizabeth Land, erected in 1939 by Sir Hubert Wilkins (Lat 68°22'S, Long 78°33'E). The cairn houses a canister containing a record of his visit.
- **7. Stone with inscribed plaque,** erected at Mirny Observatory, Mabus Point, in memory of driver-mechanic Ivan Kharma who perished on fast ice in the performance of official duties in 1956 (Lat 66°33'S, Long 93°01'E).
- **8. Metal monument-sledge** at Mirny Observatory, Mabus Point, with plaque in memory of driver-mechanic Anatoly Shcheglov who perished in the performance of official duties (Lat 66°33'S, Long 93°01'E).

- **9. Cemetery on Buromskiy Island,** near Mirny Observatory, in which are buried Soviet, Czechoslovakian and GDR citizens, members of Soviet Antarctic Expeditions, who perished in the performance of official duties on 3 August, 1960 (Lat 66°32'S, Long 93°01'E).
- **10. Building (magnetic observatory)** at Dobrowolsky Station, Bunger Hills, with plaque in memory of the opening of Oasis Station in 1956 (Lat 66°16'S, Long 100°45'E).
- **11. Heavy tractor** at Vostok Station with plaque in memory of the opening of the Station in 1957 (Lat 78°28'S, Long 106°48'E).
- **12. Cross and plaque** at Cape Denison, George V Land, erected in 1913 by Sir Douglas Mawson on a hill situated 300 metres west by south from the main hut of the Australasian Antarctic Expedition of 1911-14 (Lat 67°00'S, Long 142°42'E). The cross and plaque commemorate Lieutenant B. E. S. Ninnis and Dr. X. Mertz, members of the expedition, who died in 1913 while engaged in the work of the expedition.
- **13. Hut** at Cape Denison, George V Land, built in January 1912 by Sir Douglas Mawson for the Australasian Antarctic Expedition of 1911-14 (Lat 67°00'S, Long 142°42'E). This was the main base of the expedition.
- **14.** Inexpressible Island, Terra Nova Bay, Scott Coast, **Site of ice cave** at Inexpressible Bay, Terra Nova Bay, constructed in March 1912 by Victor Campbell's Northern Party, British Antarctic Expedition, 1910-13 (Lat 70°54'S, Long 163°43'E). The Party spent the winter of 1912 in this ice cave.
- **15. Hut** at Cape Royds, Ross Island, built in February 1908 by Ernest Shackleton (Lat 77°38'S, Long 166°07'E). Restored in January 1961 by Antarctic Division of New Zealand Department of Scientific and Industrial Research.
- **16. Hut** at Cape Evans, Ross Island, built in January 1911 by Captain Robert Falcon Scott (Lat 77°38'S, Long 166°24'E). Restored in January 1961 by Antarctic Division of New Zealand Department of Scientific and Industrial Research.
- **17. Cross** on Wind Vane Hill, Cape Evans, Ross Island, erected by the Ross Sea Party of Ernest

- Shackleton's Trans-Antarctic Expedition, 1914-16, in memory of three members of the party who died in the vicinity in 1916 (Lat 77°38'S, Long 166°24'E).
- **18. Hut** at Hut Point, Ross Island, built in February 1902 by Captain Robert Falcon Scott (Lat 77°51'S, Long 166°37'E). Partially restored in January 1964 by the New Zealand Antarctic Society, with assistance from the United States Government.
- **19. Cross** at Hut Point, Ross Island, erected in February 1904 by the British Antarctic Expedition, 1901-04, in memory of T. Vince, a member of that expedition who died in the vicinity. (Lat 77°51'S, Long 166°37'E.)
- **20. Cross** on Observation Hill, Ross Island, erected in January 1913 by the British Antarctic Expedition, 1910-13, in memory of Captain Robert Falcon Scott's party which perished on the return journey from the South Pole, March 1912. (Lat 77°51'S, Long 166°40'E).
- **21. Stone hut** at Cape Crozier, Ross Island, constructed in July 1911 by Edward Wilson's party (British Antarctic Expedition, 1910-13) during the winter journey to collect Emperor penguin eggs. (Lat 77°32'S, Long 169°18'E).
- **22. Hut** at Cape Adare built in February 1899 during Southern Cross Expedition led by C. E. Borchgrevink (Lat 71°17'S, Long 170°15'E). There are three huts at Cape Adare; two date from Borchgrevink's expedition, and one from Scott's Northern Party, 1910-11. Only the southernmost Borchgrevink hut survives in a reasonable state of repair.
- **23. Grave** at Cape Adare of Norwegian biologist, Nicolai Hanson, a member of C.E. Borchgrevink's 'Southern Cross' Expedition, 1899-1900 (Lat 71°17'S, Long 170°15'E). This is the first known grave in the Antarctic.
- **24. Rock cairn,** known as 'Amundsen's Cairn', on Mount Betty, Queen Maud Range (Lat 85°11'S, Long 163°45'W) erected by Roald Amundsen on 6 January 1912, on his way back to 'Framheim' from the South Pole.
 - 25. De-listed
- **26.** Abandoned installations of Argentine Station 'General San Martin' on Barry Island, Debenham Islands, Marguerite Bay, with cross, flag mast, and monolith built in 1951. (Lat 68°08'S, Long 67°08'W)
- **27. Cairn with plaque** on Megalestris Hill, Petermann Island, erected in 1909 by the second French expedition led by J.-B. Charcot. (Lat 65°10'S, Long 64°10'W). Restored by the British Antarctic Survey in 1958.

- **28. Rock cairn** at Port Charcot, Booth Island, with wooden pillar and plaque inscribed with the names of the first French expedition led by J.-B. Charcot which wintered here in 1904 aboard Le Français (Lat 65°03'S, Long 64°01'W).
- **29. Lighthouse** named 'Primero de Mayo' erected on Lambda Island, Melchior Islands, by Argentina in 1942. (Lat 64°18'S, Long 62°59'W). This was the first Argentine light-house in the Antarctic.
- **30. Shelter** at Paradise Harbour erected in 1950 near the Chilean Base 'Gabriel Gonzales Videla' to honour Gabriel Gonzales Videla, the first Head of State to visit the Antarctic. (Lat 64°49'S, Long 62°51'W).
 - 31. De-listed
- **32. Concrete monolith** erected in 1947, near Arturo Prat Base on Greenwich Island. Point of reference for Chilean Antarctic hydrographic work. (Lat 62°29'S, Long 59°40'W).
- **33. Shelter and cross with plaque** near Arturo Prat Base, Greenwich Island (Lat 62°30'S, Long 59°41'W). Named in memory of Lieutenant-Commander Gonzalez Pacheco, who died tragically while in charge of the station in 1960.
- **34. Bust** of the Chilean naval hero Arturo Prat erected in 1947 at the base of the same name on Greenwich Island. (Lat 62°30'S, Long 59°41'W).
- **35. Wooden cross and statue** of the Virgin of Carmen erected in 1947 near Arturo Prat Base on Greenwich Island (Lat 62°30'S, Long 59°41'W). There is also nearby a metal plaque of Lions International Club.
- **36. Metal plaque** at Potter Cove, King George Island, erected by Eduard Dallmann to commemorate the visit of his German expedition on 1 March, 1874. (Lat 62°13'S, Long 58°42'W).
- **37. Statue of Bernardo O'Higgins,** erected in 1948 in front of the station of the same name (Lat 63°19'S, Long 57°54'W). To honour the first ruler of Chile to envisage the importance of Antarctica.
- **38. Hut** on Snow Hill Island built in February 1902 by the main party of the Swedish South Polar Expedition, led by Otto Nordenskjold. (Lat 64°24'S, Long 57°00'W).
- **39. Stone hut** at Hope Bay built in January 1903 by a party of the Swedish South Polar Expedition. (Lat 63°24'S, Long 56°59'W).
- **40. Bust** of General San Martin, grotto with a statue of the Virgin of Lujan, and a flag mast at Base 'Esperanza', Hope Bay, erected by Argentina in 1955; together with a graveyard with stele in memory of members of Argentine expeditions who died in the area. (Lat 63°24'S, Long 56°59'W).

- **41. Stone hut** on Paulet Island built in February 1903 by C. A. Larsen, Norwegian captain of the wrecked vessel 'Antarctic' of the Swedish South Polar Expedition led by Otto Nordenskjold, together with the grave of a member of that expedition (Lat 63°35'S, Long 55°47'W) and the rock cairn built by the survivors of the wreck at the highest point of the island to draw the attention of rescue expeditions.
- **42. Area at Scotia Bay,** Laurie Island, South Orkney Island, in which are found: stone hut built in 1903 by the Scottish Expedition led by W.S. Bruce; the Argentine Meteorological and magnetic Observatory, built in 1905; and a graveyard with seven tombs (dating from 1903). (Lat 60°46'S, Long 44°40'W).
- **43.** Cross erected in 1955, at a distance of 1,300 metres north-east of the Argentine Base 'General Belgrano' at Piedrabuena Bay, Filchner Ice Shelf (Lat 77°49'S, Long 38°02'W).
- **44. Plaque** erected at the temporary Indian station 'Dakshin Gangotri', Princess Astrid Kyst, Dronning Maud Land, listing the names of the members of the First Indian Antarctic Expedition which landed nearby on 9 January 1982 (Lat 70°45'S, Long 11°38'E).
- **45. Plaque** on Brabant Island, on Metchnikoff Point, Lat 64°02'S, Long 62°34'W, mounted at a height of 70 m on the crest of the moraine separating this point from the glacier and bearing the following inscription: 'This monument was built by François de Gerlache and other members of the Joint Services Expedition 1983-85 to commemorate the first landing on Brabant Island by the Belgian Antarctic expedition 1897-99: Adrien de Gerlache (Belgium) leader, Roald Amundsen (Norway), Henryk Arctowski (Poland), Frederick Cook (USA) and Emile Danco (Belgium) camped nearby from 30 January to 6 February 1898'.
- **46.** All the buildings and installations of **Port Martin base**, Terre Adélie (Lat 66°49'S, Long 141°24'E) constructed in 1950 by the 3rd French expedition in Terre Adélie and partly destroyed by fire during the night of 23 to 24 January 1952.
- **47. Wooden building** called 'Base Marret' on the lle des Pétrels, Terre Adélie (Lat 66°40'S, Long 140°01E) where seven men under the command of Mario Marret overwintered in 1952 following the fire at Port Martin base.
- **48. Cross** erected on the North-East headland of the Ile des Pétrels, Terre Adélie (Lat 66°40'S, Long 140°01'E) in memory of André Prudhomme, head meteorologist in the 3rd International Geophysical Year expedition who disappeared during a storm on 7 January 1959.

- **49.** The **concrete pillar** erected by the First Polish Antarctic Expedition at Dobrolowski station on the Bunger Hill to measure acceleration due to gravity g = 982,439.4 mgal ± 0.4 mgal in relation to Warsaw, according to the Potsdam system, in January 1959 (Lat **66°16.3'S, Long 100°45'E, h = 35.4m).**
- **50.** A **brass plaque** bearing the Polish eagle, the national emblem of Poland, the dates 1975 and 1976, and the following text in Polish, English and Russian: "In memory of the landing of members of the first Polish Antarctic marine research expedition on the vessels 'Profesor Siedlecki' and 'Tazar' in February 1976". This plaque, south-west of the Chilean and Soviet stations, is mounted on a cliff facing Maxwell Bay, Fildes Peninsula, King George Island.
- **51.** The **grave** of Wlodzimierz Puchalski, surmounted by an iron cross, on a hill to the south of Arctowski station on King George Island. W. Puchalski, was an artist, a producer of documentary nature films, who died on 19 January 1979 whilst working at the station.
- **52. Monolith** erected to commemorate the establishment on 20 February 1985 by the People's Republic of China of the 'Great Wall Station' (Lat 62°13'S, Long 58°58'W) on Fildes Peninsula, King George Island, in the South Shetland Islands. Engraved on the monolith is the following inscription in Chinese: 'Great Wall Station, First Chinese Antarctic Research Expedition, 20 February 1985'.
- **53. Monoliths and Commemorative Plaques** celebrating the rescue of survivors of the British ship 'Endurance' by the Chilean Navy cutter 'Yelcho' displaying the following words:

"Here, on August 30th., 1916, the Chilean Navy cutter 'Yelcho' commanded by Pilot Luis Pardo Villalón rescued the 22 men from the Shackleton Expedition who survived the wreck of the 'Endurance' living for four and one half months in this Island"

The Monolith and the plaques have been placed on Elephant Island (61°03' Lat.S., 54°50' Long.W.) and their replicas on the Chilean bases 'Arturo Prat' (62°30' Lat.S., 59°49' Long.W.) and 'Rodolfo Marsh' (62°12' Lat.S., 62°12' Long.W.). Bronze busts of the pilot Luis Pardo Villalon were placed on the three above-mentioned monoliths during the XXIVth Chilean Antarctic Scientific Expedition in 1987-88.

54. Richard E. Byrd Historic Monument, McMurdo Station, Antarctica (77°51'S, 166°40'E). Bronze bust on black marble, 5ft high x 2ft square, on wood platform, bearing inscriptions describ-

- ing the polar achievements of Richard Evelyn Byrd. Erected at McMurdo Station (77°51'S, 166°40'E) in 1965.
- **55. East Base,** Antarctica, Stonington Island (68°11'S, 67°00'W). Buildings and artefacts at East Base, Stonington Island and their immediate environs. These structures were erected and used during two U.S. wintering expeditions: the Antarctic Service Expedition (1939-1941) and the Ronne Antarctic Research Expedition (1947-1948)). The size of the historic area is approximately 1,000 meters in the north-south direction (from the beach to Northeast Glacier adjacent to Back Bay) and approximately 500 metres in the east-west direction.
- **56. Waterboat Point,** Danco Coast, Antarctic Peninsula (64°49'S, 62°52'W). The remains and immediate environs of the Waterboat Point hut, situated close to the unoccupied Chilean station, 'President Gabriel González Videla'. The Waterboat Point hut, of which only the base of the boat, roots of door posts and an outline of the hut and extension still exist, was occupied by the UK two-man expedition of Bagshawe and Lester in 1921-22. This was, and indeed remains, the smallest expedition ever to overwinter in Antarctica.
- **57. Commemorative plaque** at Yankee Bay, MacFarlane Strait, Greenwich Island, South Shetland Islands, near the Chilean refuge located at latitude 62°32'S, and longitude 59°45'W, to the Memory of Captain Robert MacFarlane, who in 1820 explored the Antarctic Peninsula area in the brigantine Dragón.
 - 58. De-listed
- **59.** A **cairn** on Half Moon beach, Cape Shirreff, Livingston Island, South Shetland Islands, commemorating the officers, soldiers and seamen on board the San Telmo, which sank in September 1819; possibly the first people to live and die in the wastes of Antarctica.
- **60. Wooden plaque and rock cairn** located at Penguins Bay, southern coast of Seymour Island (Marambio), James Ross Archipelago (64°16'00"S, 56°39'10"W). This plaque was placed on 10 November 1903 by the crew of a rescue mission of the Argentinian Corvette 'Uruguay' in the site where they met members of the Swedish expedition led by Dr Otto Nordenskjöld. The text of the wooden plaque reads as follows:
 - "10.XI.1903 'Uruguay' (Argentine Navy) in its journey to give assistance to the Swedish Antarctic expedition."

In January 1990, a rock cairn was erected by Argentina in memory of this event in the place where the plaque is located.

- **61. Port Lockroy,** Base A, on Goudier Island, off Wiencke Island, Antarctic Peninsula (Lat 64°49' S. Long 63°31' W). Of historic importance as an Operation Tabarin base and for scientific research.
- **62. Argentine Islands,** Base F (Wordie House), South-west corner of Winter Island, one of the group known as the Argentine Islands (Lat 65°15' S. Long 64°16' W). Of historic interest as an example of an early British scientific base.
- **63. Horseshoe Island,** Base Y. Marguerite Bay, West Graham Land (Lat 67°49' S. Long 67°18' W). Noteworthy as a relatively unaltered and completely equipped base of a later period. Blaiklock, the refuge hut nearby, is taken to be an integral part of the base.
- **64. Stonington Island,** Base E, Northern end of Stonington Island, Marguerite Bay, West Graham Land (Long 68°11' S. 67°00' W). Of historical importance in the early period of exploration and later British Antarctic Survey (BAS) history of the 1960s and 70s.
- **65. Message Post,** Svend Foyn Island. A pole with a box attached was placed on 16 January 1895 during the whaling expedition of Henryk Bull and Captain Leonard Kristensen of the ship "Antarctica." It was examined and found intact by the British Antarctic Expedition of 1898-1900 and then sighted from the beach by the USS Edisto in 1956 and USCGS Glacier in 1965 (latitude approximately 71°52'S, longitude 171°10'E).
- **66. Prestrud's Cairn,** at the foot of main bluff Scott Nunataks, Queen Alexandra Mountains. A small rock cairn at the foot of the main bluff on the north side of the Aunataks by Lieutenant K. Prestrud on 3 December 1911 during the Norwegian Antarctic Expedition of 1910- 1912 (latitude 77°12' S. longitude 154°30' W).
- **67. Rock Shelter "Granite House",** Cape Geology, Granite Harbour. This shelter was constructed in December 1911 for use as a field kitchen by Taylor's second geological excursion during the British Antarctic Expedition of 1910-1913. It was enclosed on three sides with granite boulder walls and used as a sledge to form a roof tree which supported seal skins anchored by heavy rocks (latitude 77°OO'E, longitude 162°32'E). A 1981 inspection of the "house" found it in good condition although the sledge had begun to disintegrate. The most recent visit to the site in 1990 reported that this deterioration was accelerating.
- **68. Depot,** Hells Gate Moraine, Inexpressible Island, Terra Nova Bay. An emergency depot, consisting of a sledge loaded with supplies and equipment, was place on 25 January 1913 by the British Antarctic Expedition at the close of the

- 1910-1913 expedition. The depot was established by the crew of the Terra Nova to provide security in the event the ship was unable to return and pick them up (latitude 74°56'S, longitude 163°48'E). In 1994, the sledge and supplies were removed in order to stabilise their condition as wind and scoria particles had started to cause rapid deterioration.
- **69. Message Post,** Cape Crozier. Erected on 22 January 1902 by Captain Robert F Scott's Discovery Expedition (the National Antarctic Expedition of 1901-1904) and consists of a post to which a metal cylinder was attached containing an account of the Expedition's movements. It was intended to provide information for the expedition relief ships (latitude 77°27'S, longitude 169°16'E). The message post, although weathered, still stands, its grain blasted into high relief by countless storms. The record cylinder no longer exists.
- **70. Message Post,** Cape Wadsworth Coulman Island. A metal cylinder nailed to a red pole 8 meters above sea level placed by Captain R. F. Scott on 15 January 1902. He also painted the rocks behind the post red and white to make it more conspicuous (latitude 73°19'S, longitude 169°47'E).
- **71. Whalers Bay Whaling Station,** Whalers Bay, Deception Island. Established in 1906 by Captain Adolfo Andresen. Of historical importance as an example of an Antarctic whaling station.
- 72. Mikkelsen Cairn, Tryne Islands, Vestfold Hills. A rock cairn and a wooden mast erected by the landing party led by Captain Klarius Mikkelsen of the Norwegian whaling ship Thorshavn and including Caroline Mikkelsen, Captain Mikkelsen's wife, the first woman to set foot on East Antarctica. The cairn, at latitude 68°22'34"S longitude 78°24'33"E was discovered by Australian National Antarctic Research Expedition field parties in 1957 and again in 1995.

- 73. Memorial Cross for the 1979 Mount Erebus Crash Victims, Lewis Bay, Ross Island. A cross of stainless steel which was erected in January 1987 on a rocky promontory three kilometres from the Mount Erebus crash site in memory of the 257 people of different nationalities who lost their lives when the aircraft in which they were travelling crashed into the lower slopes of Mount Erebus, Ross Island. The Cross was erected as a mark of respect and in remembrance of those who died in this tragedy.
- **74.** The south-west coast of **Elephant Island** between the southern side of Mensa Bay (61°10'S, 55°24'W) and Cape Lookout (61°17'S, 55°13'W), including all of the fore-shore and intertidal areas, in which the wreckage of a large wooden sailing ship has been found.
- **75.** The **A Hut at Scott Base**, located at Pram Point, Ross Island, Ross Sea (77°51'S, 166°46'E). It is the only existing Trans Antarctic Expedition 1956/1957 building still remaining in Antarctica.
- **76.** The ruins of the Base Pedro Aguirre Cerda Station. This Chilean meteorological and volcanological center situated at Pendulum Cove, Deception Island (62°59'S, 60°40'W) was destroyed by volcanic eruptions in 1967 and 1969.

This list was amended in accordance with Annex V of the Environmental Protocol to the Antarctic Treaty and adopted as Measure 3 by the XXVI Antarctic Consultative Meeting in 2003.

APPENDIX D:

The Metric System

The Metric Conversion Act of 1975 (15 USC §§205a-k) and E.O. 12770 (3 CFR, 1991 comp.) encourage Federal agencies to use the metric system in procurement, grants, and other business-related activities. The General Conditions of each NSF grant contain a provision encouraging Principal Investigators to submit progress reports, final reports, other reports and publications produced under grants that employ the metric system of measurements.

Approximate Conversion from CUSTOMARY TO METRIC		Approximate Conversion from METRIC TO CUSTOMARY			
When you know	You can find	lf you multiply by	When you know	You can find	If you multiply by
Length			Length		
inches	millimeters	25	millimeters	inches	0.04
feet	centimeters	30	centimeters	inches	0.4
feet	meters	0.3	meters	feet	3.3
yards	meters	0.9	meters	yards	1.1
miles	kilometers	1.6	kilometers	miles	0.6
Area			Area		
square inches	square centimeters	6.5	square centimeters	square inches	0.16
square feet	square meters	0.09	square meters	square yards	1.2
square yards	square meters	0.8	square kilometers	square miles	0.4
square miles	square kilometers	2.6	hectares	acres	2.5
acres	hectares	0.4			
Volume			Volume		
cubic inches	cubic centimeters	16	cubic centimeters	cubic inches	0.06
cubic feet	cubic meters	0.03	cubic meters	cubic feet	35
cubic yards	cubic meters	0.8	cubic meters	cubic yards	1.3
Mass			Mass		
ounces (avoirdupois)	grams	28	grams	ounces (avoirdupois)	0.035
pounds	kilograms	0.45	kilograms	pounds	2.2
short tons	metric tons (megagrams)	0.9	metric tons (megagrams)	short tons	1.1
Liquid Volume			Liquid Volume		
ounces	milliliters	30	milliliters	ounces	0.034
pints	liters	0.47	liters	pints	2.1
quarts	liters	0.95	liters	quarts	1.06
gallons	liters	3.8	liters	gallons	0.26
Temperature			Temperature		
degrees Fahrenheit	degrees Celsius	5/9	degrees Celsius	degrees Fahrenheit	9/5
<u> </u>	<u> </u>	(after			(then
	subtr	acting 32)			add 32)

Glossary

109th Airlift Wing Division of the New York Air National Guard that supports the United States Antarctic Program.

ACA Antarctic Conservation Act.

ACL Allowable Cabin Load. Payload of aircraft. Calculations based upon take-off, landing restrictions, range, weather, fuel requirements, etc

ACPB Air Cargo Priority Board.

AFRTS Armed Forces Radio and Television Service

AGUNSA Agencias Universales S.A., RPSC's agent in Chile that supports the U.S. Antarctic Program.

AMC Air Mobility Command, U.S. Air Force, formally known as MAC, Military Airlift Command.

ANG Air National Guard, U.S. Air Force Reserve Component.

AOD Airport of Departure.

AOPB Air Operations Priority Board.

APHIS Animal and Plant Health Inspection Service, U.S. Department of Agriculture.

APO Air Post Office.

APT Antarctic Passenger Terminal at the International Antarctic Center in Christchurch, New Zealand.

ARVOC Antarctic Research Vessel Oversight Committee. An advisory group who meets to discuss issues related to science research on the vessels.

ATO Antarctic Terminal Operations. Division of RPSC that manages the movement of passengers and cargo.

Bag Drag Similar to check-in with commercial airlines. Passengers are weighed and checked for ECW gear, carry-on bags are approved, and hold bags are palletized for transport.

Beaker A nickname for scientists.

Boomerang A flight that departs and returns to its origin, due to weather or maintenance considerations.

Bumped Refers to cargo or passengers that is/are removed from a flight due to weight restrictions or other considerations.

C-17 A new U.S. Air Force aircraft that has been tested and may be used in Antarctica.

C-130 A wheeled four-engine Lockheed Hercules turboprop airplane. LC-130 indicates a ski-equipped plane like those used in Antarctica.

C-141 U.S. Air Force aircraft used to carry cargo and passengers to McMurdo Station, Antarctica.

CDC Clothing Distribution Center located in Christchurch, NZ.

Chalet Building that houses NSF and RPSC headquarters staff at McMurdo Station, Antarctica.

CHC or CHCH Acronym for "Christchurch", New Zealand. Pronounced "Cheech."

Clean Air Sector Area upwind from the South Pole Station that is not contaminated by exhaust fumes from South Pole activity.

COM AIR Commercial air transport.

COMNAP Council on Managers of National Antarctic Programs.

COM SUR Commercial Surface vessel transport. **Condition One** Weather condition when visibility is less than 100 ft., or wind is greater than 55 knots, or wind chill is greater than 100° F.

Condition Three Weather condition better than Condition Two.

Condition Two Weather condition when wind speed is between 48-55 knots, or visibility is less than 1/4 mile, but greater than 100 ft., or wind chill is greater than -75° F, but less than 100° F.

Continental Area The part of U.S. Antarctic Program that includes McMurdo Station, including South Pole and field camps supported from McMurdo (not the Peninsula

CONUS Continental United States.

CSEC Albert P. Crary Science and Engineering Center, laboratory at McMurdo Station, Antarctica. Also known as Building One.

CTS Cargo Tracking System, used to track U.S. Antarctic Program related cargo.

Dark Sector Area near the South Pole Station that is not contaminated by light pollution.

Deployment Initial passenger transport from airport of departure to destination.

Det 13 Air National Guard Detachment 13, provides command and control and flight operations support.

DNF Do Not Freeze.

DOD Department of Defense.

DSG Deployment Specialists Group. The combination of the Travel Department and Population Management to assist with every aspect of the deployment process.

DV Distinguished Visitor.

E-mail Electronic mail.

ECW Extreme Cold Weather. Usually in reference to the special clothing/equipment issued to U.S. Antarctic Program participants.

EHS Environmental Health and Safety department.

EPA Environmental Protection Agency, U.S. Government.

Event Number A number identifying a science group that has received funding from NSF to perform research in Antarctica.

FAR Federal Acquisition Regulations.

FEMC Facilities, Engineering, Maintenance and Construction.

Galley Navy term for dining facility.

Grantee A scientist who has received a grant from the NSF.

Herbie Term used to describe a storm with fierce, blowing wind and/or snow.

HR Human Resources.

IAC International Antarctic Center, Christchurch, New Zealand.

Ice Slang term for Antarctica. Usage: "I'm going to the Ice."

Ice Runway The runway used during mainbody flights, it is built on the temporary sea ice and accommodates wheeled airplanes.

IGY International Geophysical Year, 1957-1958. **IT** Information Technology, the department overseeing telecommunications and computers.

JP-8 Type of fuel used for aircraft and in diesel applications.

JSOC Joint Space Operations Center, a building in McMurdo.

Kilo Air A method of cargo shipment using ocean vessels from Port Hueneme, California, to New Zealand, then delivered to McMurdo Station by air.

Kiwi Nickname that refers to New Zealanders. **Land-line** Describes a regular telephone line compared to broadcast radio conversation.

LC-130 A ski-equipped four-engine Lockheed Hercules turboprop airplane.

LMG Research support vessel called the *Laurence M. Gould.*

LTER Long Term Ecological Research.

MAF Ministry of Agriculture and Fisheries, New Zealand.

Mainbody The period of time in October when the majority of passengers and cargo are flown into McMurdo Station.

MAUC McMurdo Area Users Committee. An advisory group who meets to discuss issues related to science research in the McMurdo Area.

MCC Movement Control Center, McMurdo Station, Antarctica.

MEC Mechanical Equipment Center, McMurdo Station, Antarctica.

Medevac Medical evacuation of a patient.

MOGAS Motor automotive gasoline.

MSC Military Sealift Command.

NBP Research support vessel called the *Nathaniel B. Palmer*.

NGA Non-governmental activity.

NSF National Science Foundation, an agency of the U.S. Government.

NYANG New York Air National Guard.
NZAP New Zealand Antarctic Programme.
OAE Old Antarctic Explorer. A reference to an experienced Antarctic program participant.

OPP Office of Polar Programs, National Science Foundation.

ORW Operational Request Worksheet.

OSHA Occupational Safety and Health Act.

PA/QA Performance Assurance, Quality Assurance. The RPSC department that monitors the performance and quality of service provided to the U.S. Antarctic Program.

PAUC Palmer Area Users Committee. An advisory group who meets to discuss issues related to science research in the Palmer Area.

Pax Vernacular for Passenger/s.

Pegasus A prepared runway on permanent ice near McMurdo Station that operates mainly in late January and February and accommodates wheeled airplanes. It is primarily used for the redeployment of participants and can be used in winter.

Peninsula Area The part of the U.S. Antarctic Program that includes Palmer Station, R/V Laurence M. Gould, and other operations in the Antarctic Peninsula area.

PHI Petroleum Helicopters Incorporated.

PI Principal Investigator: Team leader or scientist in charge of a funded research project.

POC Point-of-Contact.

POLAR ICE (Participant On-Line Antarctic Research Information Coordination Environment) A web-based data collection and dissemination system designed to capture and administer all relevant support requirements for scientific research in Antarctica.

PQ'd or PQ Physically Qualified.

PSR Point of Safe Return.

Radioisotopes A radioactive isotope.

Redeployment Passenger transport from destination to origin.

Retrograde To return cargo from the field to McMurdo Station, or from McMurdo to destinations North. Usually in the reverse order of its initial deployment.

RNZAF Royal New Zealand Air Force.

RDD Required Delivery Date.

ROS Required-On-Site date.

RPSC Raytheon Polar Services Company

RPSNZ Raytheon Polar Services New Zealand. Christchurch location of logistical support for the U.S. Antarctic Program.

SAAM Special Assignment Airlift Mission, a mission supported by U.S. Antarctic Program AMC at the request of the NSF.

SAR Search and Rescue.

SCALOP The Standing Committee of Antarctic Logistics and Operations.

SCAR Scientific Committee on Antarctic

- Research, of the International Council of Scientific Unions, a non-governmental organization.
- **Science Planning Managers** RPSC personnel who work with science groups to plan their research season.
- **Science Support** The RPSC department that works with scientists to ensure their research requirements are met.
- **SFA** Support Forces Antarctica. The tactical operational name given to U.S. military activities in Antarctica.
- SIP Support Information Package.
- **SPA** Specially Protected Area, an Antarctic Treaty designation.
- **SPSM** South Pole Station Modernization.
- **SPUC** South Pole Users Committee. An advisory group who meets to discuss issues related to science research at the South Pole.
- **SSC** Science Support Center, a building in McMurdo.
- **SSSI** Site of Special Scientific Interest, an Antarctic Treaty designation.
- **Supply Chain Management** The RPSC department that buys, arranges transportation and distributes materials for the U.S. Antarctic Program.
- **SUREPA** Senior U.S. Representative, Antarctica, appointed by the Director of NSF to oversee U.S. Government activities in Antarctica.
- **T-event** A technical event, approved by the NSF to perform technical functions at U.S. Antarctic Program locations.

- **USA** United States of America.
- **USAF** United States Air Force.
- **U.S. Antarctic Program (USAP)** United States Antarctic Program, the U.S. Government's program, administered by the National Science Foundation, for research and related activities regarding Antarctica.
- **USCG** United States Coast Guard.
- **USGS** United States Geological Survey.
- **USN** United States Navy.
- **V-event** A Visitor, approved by the NSF for visiting U.S. Antarctic Program locations.
- **Vessel** A ship. Often refers to the annual resupply ship or to research vessels.
- **VHF** Very high frequency: VHF radios are used locally around stations and ships.
- **VMF** Acronym for the Vehicle Maintenance Facility.
- **W-event** Writer or artist, supported by the NSF in Antarctica.
- **White out** A weather term to describe a situation where the horizon is not definitive usually due to blowing snow.
- **WINFLY** Vernacular for 'winter fly-in'. Usually occurring in August.
- **Winter** Verb to winter: to spend the austral winter season at a U.S. Antarctic Program station.

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MAILING ADDRESSES

CLIP AND LEAVE WITH FRIENDS AND FAMILY

Use this clip-out page (or make copies) to provide your friends and family with your address while you're on the ice. For more details on mailing letters and packages to Antarctic stations and ships, read Chapter 6.

McMurdo Station - Grantee

[Your Name] McMurdo Station Project [insert your #] PSC 469 Box 800 APO AP 96599-1035

McMurdo Station - RPSC

[Your Name], RPSC McMurdo Station PSC 469 Box 700 APO AP 96599-1035

South Pole Station - Grantee and RPSC

[Your Name, Project # or RPSC] South Pole Station PSC 468 Box 400 APO AP 96598

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TIPS FOR SENDERS:

- Packages intended to reach McMurdo Station and South Pole Station by Christmas need to be mailed from the U.S. by Halloween.
- ▶ Flat mail (letters) goes faster than packages. Packages may take up to 6 weeks.
- ▶ Do not mail perishable food.
- Do not use foam peanuts.



HANDY CONTACT INFORMATION

Following is a list of frequently used phone numbers ... for you or your stateside family and friends.

National Science Foundation Office of Polar Programs

703.292.8030 www.nsf.gov

Raytheon Polar Services

1.800.688.8606 www.usap.gov

RPSC Deployment Specialists Group

1.800.688.8606, prompt 2

RPSC Medical Department

1.800.688.8606, prompt 3

My point-of-contact (POC) at RPSC is:

My POC's phone number is:

Learn the Lingo!

After **PQ**'ing, **USAP**

RPSC FEMC FNGs

and **OAEs** will deploy

from the **CDC** in **Chch**

(cheech) on a **C-141**

or **LC-130**, arriving

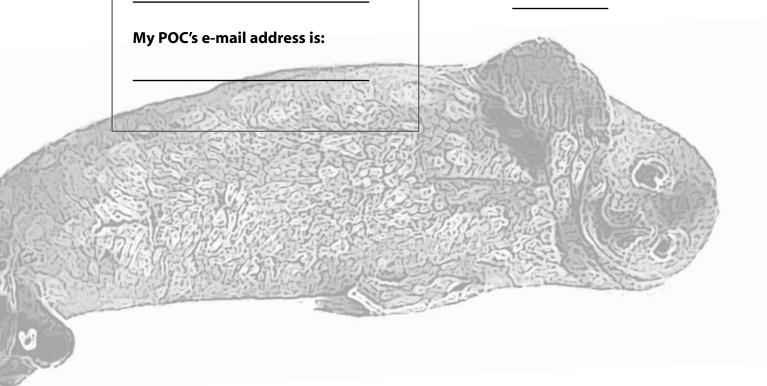
in **Mactown**

around **1400**,

dressed in **ECW**...

(don't worry,

you'll catch on!)





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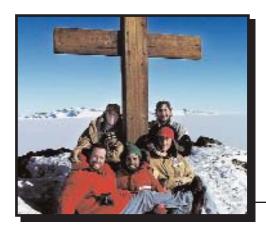
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One of the few signs on the continent points the way.



A researcher collects rock samples to bring back to the laboratory.



Friends gather on Observation Hill.



A U.S. Coast Guard cutter breaks ice in McMurdo Sound.